ATTN: Geophysist (TBD)		
California Environmental Protection Agency Department of Toxic Substances Control Office of Military Facilities Northern California Region ATTN: Don Diebert Sacramento, CA	5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21	2 – HC 2 – CD
City of Mojave TBD	5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21	1 – CD
City of California City TBD	5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21	1 – CD
Kern County TBD	5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21	1 – CD
TPP Members TBD	5, 6, 8, 9, 11, 12, 14, 15, 17, 18, 20, 21	1 – CD

Table 4-2
Submittals

Submittal #	Submittal Title	Due Date *All dates/days are calendar days
1	Abbreviated Site Safety & Health Plan	3 days before site visit
2	Proposed Schedule	TBD in *.pdf format
3	Trip Report	14 Days after completion of trip
4	Draft TPP Document	14 days after last TPP
5	Draft-Final TPP Document	14 days after receipt of comments
6	Final TPP Document	14 days after receipt of comments
7	Draft Public Involvement Plan	60 days after 1st TPP meeting
8	Draft-Final Public Involvement Plan	14 days after receipt of comments
9	Final Public Involvement Plan	14 days after receipt of comments
10	Draft GPO Plan	TBD
11	Draft-Final GPO Plan	TBD
12	Final GPO Plan	TBD
13	Draft GPO Letter Report	TBD
14	Draft-Final GPO Letter Report	TBD
15	Final GPO Letter Report	TBD
16	Draft Work Plan	14 days after 1st TPP meeting
17	Draft-Final Work Plan	14 days after receipt of comments
18	Final Work Plan	14 days after receipt of comments

19	Draft RI/FS Report	30 days after completion of fieldwork
20	Draft-Final RI/FS Report	14 days after receipt of comments
21	Final RI/FS Report	14 days after receipt of comments
22	MC/Soil Sample Results	IAW DID MR
23	Draft Proposed Plan	TBD
24	Draft-Final Proposed Plan	TBD
25	Final Proposed Plan	TBD
26	Draft Decision Document	TBD
27	Draft-Final Decision Document	TBD
28	Final Decision Document	TBD

* There may be a later requirement to send some of these submittals to other agencies as detailed during the TPP process.

5.0 REFERENCES:

5.1 29CFR 1910, Occupational Safety and Health Administration (OSHA) General Industry Standards

5.2 29CFR 1926, Construction Industry Standards

5.3 29CFR 1910.120/29CFR 1926.65 - Hazardous Waste Site Operations and Emergency Response

5.4 40CFR 300, National Contingency Plan

5.5 NIOSH/OSHA/USCG/EPA (DHHS)(NIOSH) Publication #85-115) (OCT 85), Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities

5.6 Federal Acquisition Regulation (FAR) Clause 52.236.13, Accident Prevention

5.7 EM 385-1-1 (3 SEP 96), US Army Corps of Engineers Safety and Health Requirements Manual

5.8 EM 1110-1-4009 (23 June 2000) Engineering and Design – Ordnance and Explosives Response

5.9 EP 1110-1-18 (24 June 2000) Engineering and Design – Ordnance and Explosives Response

5.10 EP 385-1-95a 29 June 2001 Basic Safety Concepts and Considerations for Ordnance and Explosives Operations

5.11 EP 385-1-95b 28 March 2003, Explosive Safety

5.12 Interim Guidance Document 01-02, 27 June 2001 Implementation of Technical Project Planning (TPP) For Ordnance and Explosives (OE) Formerly Used Defense Sites (FUDS) Projects

Table 4-3
Munitions Response
Data Item Descriptions (DIDs)

Current Number	Date	Title
MR-005-01	20031201	Type II Work Plan
MR-005-02	20031201	Technical Management Plan
MR-005-03	20031201	Explosives Management Plan
MR-005-04	20031201	Explosives Siting Plan
MR-005-05	20031201	Geophysical Investigation Plan
MR-005-05A	20031201	Geophysical Prove-Out (GPO) Plan and Report
MR-005-06	20031201	Accident Prevention Plan
MR-005-07	20031201	Geospatial Information and Electronic Submittals
MR-005-08	20031201	Work, Data, and Cost Management Plan
MR-005-09	20031201	Property Management Plan
MR-005-10	20031201	Munitions Constituents Chemical Data Quality Deliverables
MR-005-11	20031201	Quality Control Plan
MR-005-12	20031201	Environmental Protection Plan
MR-005-13	20031201	Investigative Derived Waste Plan
MR-015	20031201	Accident / Incident Reports
MR-025	20031201	Personnel Resume
MR-030	20031201	Site Specific Final Report
MR-045	20031201	Report / Minutes, Record of Meeting
MR-055	20031201	Telephone Conversations / Correspondence Records
MR-060	20031201	Conventional Explosives Safety Submission (ESS)
MR-070	20031201	Recovered Chemical Warfare Materiel Safety Submission (CSS)
MR-080	20031201	Monthly Status Report
MR-085	20031201	Project Status Report
MR-100	20031201	Institutional Analysis and Institutional Control Plan
MR-110	20031201	Recurring Review Plan
MR-120	20031201	Historical Information

APPENDIX B
Oversized Maps

Not used at this time

APPENDIX C
Local Points of Contacts

MOJAVE GUNNERY RANGE “C”
LOCAL CONTACTS

ORGANIZATION	NAME	PHONE	ADDRESS	EMAIL
California City Council	David Evans Mayor	760-373-4953	21000 Hacienda Blvd. Borrego Springs, CA 92004	mayorevans@ccis.com
	Mike Edminston Councilman	760-373-2178	21000 Hacienda Blvd. California City, CA. 93505	gmwesternrr@ccis.com
	Dr. Nick Lessenevitch Councilman	760-373-2178	21000 Hacienda Blvd. California City, CA. 93505	
	Kevin Schafer Councilman	760-373-2178	21000 Hacienda Blvd. California City, CA. 93505	Kc_extender@hotmail.com
	Cathy Strong Councilwoman	760-373-2178	21000 Hacienda Blvd. California City, CA. 93505	counsilstrong@cdcis.com
California City Fire Department	Christopher Hayes Fire Chief	760-373-7003	21130 Hacienda Blvd. California City, CA. 93505	ccfd@ccis.com
	Robert Paris Fire Captain	760-373-4841	20890 Hacienda Blvd. California City, CA. 93505	ccfd@ccis.com
California City Police Department	Linda Lunsford Chief	760-373-8606	21130 Hacienda Blvd. California City, CA. 93505	llunsford@calcitypd.com
	Steve Colerick Lieutenant	760-373-8606	21130 Hacienda Blvd. California City, CA. 93505	scolerick@calcitypd.com
Tehachapi Valley Healthcare		661-228-3241	115 West "E" Street Tehachapi, CA 93561	
California City Clinic		760-373-1256	9300 North Loop Blvd #B California City, CA 93505	
Tehachapi Rural Clinic Mojave Branch		661-824-4511	2041 Belshaw Street Mojave, CA 93505	
California Highway Patrol		661- 824-2408	1365 Highway 58 Mojave, CA 93501	
Kern County Sheriff’s Department Mojave Substation		661-824-7130		
Kern County Fire District		661-824-4581	1953 Highway 58 Mojave, CA 93505	
Kern County Bomb Squad	Dispatch Report Desk	(661) 861-3110 (661) 868-4085		

Los Angeles District

Accident Prevention Plan

Former Mojave Gunnery Range "C" RI/FS
Kern County, California

Contract No. W91PL-06-D-0008 DO-0001

Project No. J09CA728101

Prepared for:
U.S. Army Corps of Engineers
Los Angeles District
915 Wilshire Blvd.
Los Angeles, CA 90017

FINAL

January 2008

Prepared by:
MARRS Services, Inc.
13360 Firestone Boulevard, Suite 2A
Santa Fe Springs, CA 90670

TABLE OF CONTENTS

Section Page

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FIGURES

TABLES

ATTACHMENTS

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ACRONYMS

AHA	Activity Hazard Analysis
APP	Accident Prevention Plan
ANSI	American National Standards Institute
ASR	Archive Search Report
bpm	Beats Per Minute
ACGIH	American Conference of Government Industrial Hygienists
CAL OSHA	California Occupational Safety and Health Program
CESPL	USACE, Los Angeles District
CFR	Code of Federal Regulations
CPR	Cardio Pulmonary Resuscitation
CWM	Chemical Warfield material
dBA	Decibel A-Weighted Sound Level
DOD	Department of Defense
EMR	Experience Modification Rate
EOD	Explosive Ordnance Disposal
F	Fahrenheit
FUDS	Formerly Used Defense Sites
HAZMAT	Hazardous Material
HAZWOPER	Hazardous Waste Operations and Emergency Response
HSR	Health Status Report
MEC	Munitions and Explosives of Concern
MGRC	Mojave Gunnery Range “C”
MMRP	Military Munitions Response Program
MRA	Munitions Response Area
MSD	Minimum Safe Distance
MSDS	Material Safety Data Sheet
NCP	National Contingency Plan
NIOSH	National Institute of Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PPE	Personnel Protective Equipment
QC	Quality Control
RI	Remedial Investigation
RI/FS	Remedial Investigation and Feasibility Study
SOW	Scope of Work
SSHP	Site-Specific Safety Health Plan
SSO	Site Safety Officer
SUXOS	Senior UXO Supervisor
SVRA	State Vehicular Recreation Area
TWA	Time Weighted Average
USACE	United States Army Corps of Engineers
UXO	Unexploded Ordnance
WBGT	Wet Bulb Globe Temperature

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ACCIDENT PREVENTION PLAN

1.0 SIGNATURE SHEET

1.1 Plan Preparer

Armando Lucero

SIGNATURE: _____ DATE:

TITLE: MARRS SERVICES QC MANAGER

1.2 Plan Approval

Rubina Chaudhary

SIGNATURE: _____ DATE

TITLE: MARRS SERVICES PRESIDENT

1.3 Plan Concurrence

Charles Welk

SIGNATURE: _____ DATE:

TITLE: MARRS SERVICES PROJECT MANAGER

2.0 BACKGROUND INFORMATION

2.1 Contractor

MARRS Services Inc.

101 State Place Suite O

Escondido, CA 92029

2.2 Contract Number

W912PL-06-D-0008

2.3 Project Name

Former Mojave Gunnery Range “C”

2.4 Project Description

USACE, Los Angeles District has contracted MARRS Services Inc. under the Military Munitions Response Program (MMRP) for Formerly Used Defense Sites (FUDS) to conduct a Remedial Investigation/Feasibility Study (RI/FS) on the Former Mojave Gunnery Range “C” (MGRC) in California City, CA.

A description of the work activities associated with the RI investigation, activities involved in the geophysical investigation, and the activities associated with MEC handling and disposal can be found in Chapter 3.0 and 5.0 of this work plan. The primary actions listed are for planning purposes only and may be altered prior to and/or during field activities. Results from one activity may help to refine or redirect the next activity.

See Appendix B for a map showing the location of the Former Mojave Gunnery Range "C".

2.5 Contractor Accident Experience

MARRS Services Inc. currently maintains an Experience Modification Rate (EMR) of 0.82.

2.6 Work Phases and Hazardous Activities Requiring Activity Hazard Analysis (AHA)

The following is a description of the safety hazards known to be associated with each task to be performed during the field investigation, as well as specifications for personnel protective equipment (PPE) and applicable safe work procedures (as presented in Sections 1.11 and 1.13). The Safety and Health Program requirements specified in Section 1.8 are applicable to all work activities. A summarized hazard analysis for each work activity that addresses principal steps and hazards, recommended controls, equipment to be used, and inspection/training requirements is presented in Attachment C.

2.6.1 Geophysical Investigations

The hazards associated with geophysical investigations include weather and terrain-related hazards and those associated with the geophysical equipment. The hazards include cold/heat stress, sunburn, and handling of the equipment over unprepared walking surfaces. The appropriate PPE (see Section 1.11) will be worn for every entry into designated fieldwork areas. Also, the following requirements should be observed:

- Watch carefully where you walk. Do not step in shadows until you are sure of your footing. Shadows may hide Munitions and Explosives of Concern/Unexploded Ordnance (MEC/UXO) items and unfriendly animals (see Sections 1.13 and 1.14), pits, holes, or other areas of unstable footing.

- Carefully choose your footholds when crossing rocky, uneven, or loose ground surfaces.

- Stay within sight of others (always travel in pairs).

- If the weather turns foul, leave the area and seek shelter. If you notice an approaching thunderhead and thunder is audible and clouds containing lightning are within 5 miles of field teams, alert site personnel and the project management to the possibility of work stoppage. If lightning strikes within 5 miles of where field teams are working, all field operations will cease and personnel will seek shelter.

2.6.2 Ordnance and Explosives Removal

Following the identification of MEC, the potential for MEC extractions exist if an in-place detonation cannot be accomplished and the MEC item is safe to move. Only UXO-qualified personnel shall engage in this activity. During all phases of MEC extraction, site personnel involved directly with such operations will comply with the Senior UXO Supervisor (SUXOS) and Site Safety Officer (SSO) instructions. The activities described above will require that site personnel be suitably equipped with the appropriate PPE (see Section 1.11) at all times.

2.6.3 Unanticipated Work Activities

Where work activities are identified that are not addressed in this Accident Prevention Plan (APP), appropriate safety documentation and procedures will be implemented. Prior to initiation of work activities, the Site Manager will submit a work procedure document that presents appropriate safety procedures applicable to the specific work activities to be undertaken. Submitted safety procedures will be reviewed by the Health and Safety Professional for adequacy and compliance with applicable regulatory requirements, and the requirements presented in this APP. Work will not be initiated until this review is completed and any identified deficiencies corrected to the satisfaction of the Health and Safety Professional and evidence of the same is forwarded to the U.S. Army Engineering and Support Center, Los Angeles (CESPL) Safety Office for their concurrence.

3.0 STATEMENT OF SAFETY AND HEALTH POLICY

MARRS is committed to business practices, operations, and projects that protect people and the environment.

The basis for health, safety, and environmental programs is that accidents causing injury or illness to personnel or impact on the environment are preventable. It is everyone's obligation to prevent accidents, and all personnel are expected to conduct business in a manner that actively integrates the elements of the MARRS Health and Safety Program into applicable aspects of MARRS operations.

The goal of the MARRS Health and Safety Program is zero accidents; therefore accident prevention continues to be of paramount importance to the firm. To this end, safety takes precedence over expediency.

MARRS is committed to compliance with all client health, safety, and environmental requirements as well as to applicable regulations.

MARRS has established procedures that provide direction on health and safety matters to all employees. These procedures are periodically evaluated in light of current case law, new regulations, and emerging industry practices.

Each manager/supervisor has the responsibility through personal example to create a climate in which everyone shares a concern for their own safety and the safety of their fellow workers.

4.0 RESPONSIBILITIES AND LINES OF AUTHORITY

4.1 Identification and Accountability of Personnel Responsible for Safety

Ensuring safe performance of site operations and maintenance of a safe and healthy work site is the responsibility of everyone assigned to the site; therefore, all MARRS personnel as well as other site workers (and visitors, as appropriate) are responsible for the following:

- Complying with the APP and all other safety and health guidelines;
- Taking all necessary precautions to prevent injury to themselves and to their fellow employees;
- Continued alertness to all potentially harmful situations and immediately informing the SSO of any such conditions;
- Performing only those tasks that they have been trained to do and can be done safely;
- Notifying the SSO of any special medical conditions (i.e., allergies, contact lenses, diabetes) that could affect their ability to perform site operations safely;
- Notifying the SSO of any prescription and/or over-the-counter medication that they are taking that might cause drowsiness, anxiety, or other unfavorable side effects;
- Preventing spillage and splashing of materials to the greatest extent possible;
- Practicing good housekeeping by keeping the work area neat, clean, and orderly;
- Immediately reporting all injuries, no matter how minor, to the SSO;
- Maintaining site equipment in good working order, and reporting defective equipment to the SSO; and
- Properly inspecting and using the PPE required by the APP or the SSO.

The health and safety requirements listed in this APP may change as work progresses at a site; however, no changes are to be made without the knowledge of the responsible MARRS personnel listed below and are subject to approval of CESPL Safety and Program Managers. The safety organization structure and responsibilities for MARRS personnel are described in the following sections.

This work will entail field operations involving MARRS or subcontractor personnel. Figure D-1 MGRC Project Organization shows the lines of authority and communication between project personnel.

Key personnel resumes are located in Appendix H of the Work Plan.

4.1.1 Program Manager

The Program Manager is ultimately responsible for ensuring that all project activities are completed in accordance with requirements set forth in this APP. The Program Manager will confer with the designated Health and Safety Professional on all matters affecting health and safety. Other responsibilities include:

- Requiring a prompt and thorough investigation of all accidents

- Scheduling an Accident Review Board within 10 days of an injury involving a workers' compensation claim or OSHA recordability, or any accident with more than a $2,000 loss.

4.1.2 Project Manager

The Project Manager is responsible for coordinating with the client and discipline managers to complete all project activities to the satisfaction of the client in accordance with requirements set forth in this APP. The Project Manager will confer with the cognizant Health and Safety Professional on all matters affecting safety and health. Other safety and health related responsibilities include:

- Reading and becoming familiar with this APP

- Conducting periodic safety reviews of the project site and project documentation

- Maintaining compliance with the APP and other safety regulations

- Approving in writing each addendum to the APP

- Ensuring that assigned site personnel have received the proper training and medical clearance prior to entering the site.

- Maintaining the presence of two qualified first aid/cardiopulmonary resuscitation (CPR) providers on site.

- Discussing potential safety and health hazards with the designated Health and Safety Professional

- Implementing changes and approved APP addenda

4.1.3 Site Manager

The Site Manager manages all MARRS activities at the site and is responsible for field implementation of the APP. This includes communicating site requirements to all personnel, ensuring that field supervisors and subcontractors enforce all provisions of the work plan, working with the SSO to implement all elements of this APP, and consulting with the Health and Safety Professional regarding changes to the APP. Other health and safety related responsibilities include:

- Reading and becoming familiar with this APP

- Enforcing the APP and other safety regulations

- Stopping work, as required, to maintain personal and environmental health and safety

- Determining evacuation routes, establishing and posting local emergency telephone numbers, and arranging emergency transportation.

- Ensuring that all site personnel and visitors have received the proper training and medical clearance prior to entering the site.

- Ensuring that tailgate safety meetings are being conducted and maintaining attendance logs and records.

- Discussing potential health and safety hazards with the designated Health and Safety Professional and the Project Manager.

- Implementing changes as directed by the Project Manager and approved APP addenda

4.1.4 Health and Safety Professional

The designated Health and Safety Professional is responsible for developing and coordinating the APP and addenda, as required. The Health and Safety Professional will issue addenda to the APP when warranted by changed conditions.

The Health and Safety Professional is the contact for regulatory agencies on matters of health and safety. Other responsibilities of the Health and Safety Professional include:

- General health and safety program administration

- Conducting project safety and health audits

- Developing site-specific employee/community emergency response plans, as required, based upon expected hazards.

- Determining the level of personal protection required

- Updating equipment or procedures based upon information obtained during site operations

- Developing corrective action plans with the Project Safety Officer

- Leading the Accident Review Board by directing and performing all incident investigations

4.1.5 UXO Personnel General Qualifications And Responsibilities

MARRS will utilize SUXOS, SSO, and UXO technicians to provide the UXO safety support for geophysical investigation activities and MEC/UXO handling and disposal tasks as required for this project. All UXO-qualified personnel must meet the OSHA training and medical surveillance requirements as outlined in the Hazardous Waste Operations and Emergency Response (HAZWOPER) standard, found in 29 CFR Parts 1910.120(e) and (f), as well as USACE Manual EM 385-1-1, Section 28. The positions listed below shall be responsible for the safe conduct of the MEC/UXO tasks performed in support of this work plan.

4.1.6 Site Safety Officer

The SSO will be UXO qualified and approved for the site by CESPL. The SSO will be responsible for implementing and enforcing the safety and health field requirements for this APP. The SSO responsibilities include, but are not limited to, the following:

- Authorizing STOP WORK for safety and health concerns
- Providing the MEC/UXO safety portion of training sessions or briefings
- Ensuring the proper use of PPE in accordance with the requirements of this plan.
- Developing and submitting to the Project Manager any required changes of this plan
- Investigating injuries, illnesses, accidents, incidents, and near misses
- Conducting the MEC/UXO safety portion of any visitor orientation
- Conducting and documenting daily safety inspections and weekly safety audits
- Monitoring activities during the MEC/UXO safety/escort support for the geophysical investigation to find hazards and observe employees at work.

4.1.7 Senior UXO Supervisor

The SUXOS will manage the on-site manpower and equipment necessary to safely conduct the MEC/UXO portion of the site operations, as well as the safety and health responsibilities listed below:

- Review and become familiar with the Scope of Work (SOW) and project plans, and ensure that all MEC/UXO safety concerns are adequately addressed and controlled.
- Ensure that all MEC-related site operations are conducted in accordance with this document and all other relevant safety and health regulations and standards.
- Consult with the Project Manager regarding MEC/UXO safety hazards and concerns
- Directly interface with, and relay safety and health concerns to, the MARRS Site Manager/SSO.

4.1.8 UXO Technicians

The UXO technicians assigned to this project will have the responsibility for safely conducting site operations as directed by the SUXOS. The UXO technicians will also comply with this APP. The UXO technicians will immediately report any conditions that may present a known or potential hazard to site personnel.

4.1.9 Project Personnel and Visitors

All personnel working for MARRS and all visitors to the project site are required to be briefed and acknowledge their understanding of this APP. All personnel are expected to abide by the requirements of

this APP and cooperate with site supervision to ensure a safe and healthful work site. Any personnel that are not members of the MARRS project team or members of the subcontractor team will be considered a visitor. Visitors to the site will comply with the training and general requirements listed below:

- The MARRS Site Manager and SUXOS will be notified of the nature and duration of the visit
- All visitors, regardless of UXO qualification status, shall be escorted by UXO personnel while in any designated MEC/UXO area.
- All visitors shall be given a safety briefing as outlined in this APP
- When any non-essential personnel are in a designated MEC/UXO area, all MEC operations shall cease until the visitor has departed the area.
- If an unauthorized visitor attempts to enter a work area, all work in that area shall cease and the MARRS Site Manager will be notified immediately.

4.2 Lines Of Authority

The MGRC project team organization is depicted in Figure D-1.

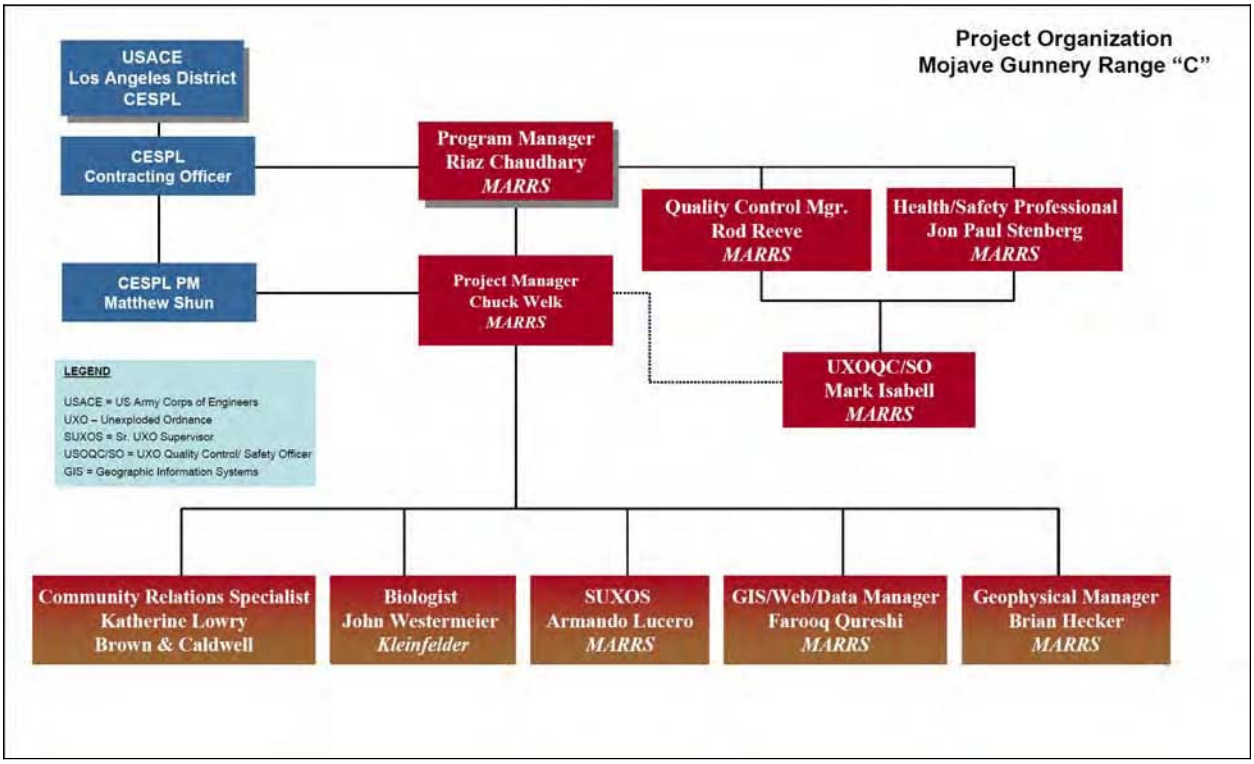

Figure D-1 MGRC Project Organization

5.0 SUBCONTRACTOR AND SUPPLIERS

5.1 Identification of Subcontractors

Engineering/Remediation Resources Group, Inc. (ERRG) will perform as a subcontractor to MARRS during the RI/FS. MARRS subcontractors are responsible for assigning specific work tasks to their employees, ensuring that the personnel are properly trained, and that their personnel participate in health and safety programs that fulfill the requirements specified in this APP (e.g., medical monitoring, hearing conservation, respiratory protection) and EM 385-1-1.

5.2 Means for Controlling and Coordinating Subcontractors

Each subcontractor will provide qualified employees and allocate sufficient time, materials, and equipment to safely complete assigned tasks. In particular, each subcontractor is responsible for equipping its personnel assigned to this project with all required PPE. MARRS's General Safety Rules for Contractors is included in Attachment B.

5.3 Safety Responsibilities of Subcontractors

MARRS considers subcontractors to be experts in all aspects of the work operations they are tasked to provide, and each subcontractor is responsible for compliance with those regulatory requirements that pertain to the services provided. All subcontractors are expected to perform their operations in accordance with their own individual safety policies and procedures to ensure that hazards associated with the performance of the work activities are properly controlled. Copies of safety documentation for the subcontractor's work activities will be provided to MARRS for review prior to the start of on-site activities. In the event that subcontractor procedures/requirements conflict with requirements specified in this APP, the more stringent guidance will be adopted.

Hazards not listed in this APP, but known to any subcontractor, or known to be associated with a subcontractor's services, must be identified and addressed during the daily field safety briefing prior to beginning work operations. MARRS's SSO have the authority to halt any subcontractor operations and to remove any subcontractor or subcontractor employee from the work area for failure to comply with established health and safety procedures or for operating in an unsafe manner.

6.0 TRAINING

6.1 Employee Safety Indoctrination

In accordance with EM 385-1-1, Section 28.D.03, all project personnel will be trained regarding potential hazards at the site and exposure prevention or control measures. Field personnel will be:

- Instructed on the contents of applicable portions of the APP and the Activity Hazard Analysis in Attachment C.

- Made aware of task-specific physical hazards and other hazards that may be encountered during site work (specified in the Activity Hazard Analysis found in Attachment C).

- Informed about the presence, identity, and hazards of any site contaminants that might be encountered.

- Made aware of fire prevention measures, fire extinguishing methods, and evacuation procedures

- Informed of anticipated tasks and operational hazards associated with those tasks

- Informed of the procedure for evacuation of injured personnel and emergency contacts and procedures.

- Provided site-specific MEC/UXO recognition training (by the SUXOS)

- Project scope to include organization and responsibilities, site orientation, facilities, access, egress, evacuation routes, and other general information

- Safety, to include safe work practices, physical hazards, PPE, on/off-site emergencies, evacuation routes, emergency agencies/numbers, emergency equipment, medical emergencies, drug and alcohol, blood borne pathogens, and other pertinent safety information.

The site-specific training will be performed at the start of the project. The training will be conducted by the SSO or his designated representative before daily work activities begin. Documentation of the training will be accomplished using the Safety Attendance form (Appendix F).

6.2 Supervisor and Employee Safety Meetings

Daily safety training will be provided each morning on site at the daily safety meeting and by the Team Leaders (Tailgate Safety Meeting) prior to work commencing.

The safety and health considerations for the day's activities will be reviewed. Additional training will be conducted when circumstances dictate. The Safety Attendance form (Appendix F) will be signed upon completion of the safety meetings. The Tailgate Safety form (Appendix F) will be signed by the team leader/members prior to commencing field activities.

The daily meetings will address that day's activities, safety issues, specific hazards, and emergency procedures, to include:

- Notification procedures and phone numbers

- Rally points and safe areas

- Hospital and evacuation routes

- Emergency equipment

6.3 Certifications

In accordance with HAZWOPER requirements, all personnel performing work at designated fieldwork areas will meet the following training requirements and medical surveillance. Personnel assigned to the project office whose activities do not include entering designated fieldwork areas are exempt from these medical surveillance and training requirements.

6.3.1 *HAZWOPER Training*

Field personnel involved with site activities will have completed the necessary health and safety training courses prior to entering the controlled areas of any site, and will conform to the requirements specified in EM 385-1-1.

To comply with the provisions established in EM 385-1-1, Section 28.D (40-hour or 24-hour initial training), and the basic training topics will include, but are not limited to:

- Hazard communication
- Flammable atmospheres and ignition controls
- Toxic chemical recognition
- Exposure guidelines
- Protective clothing
- Respiratory protection
- Hearing conservation
- Cold stress
- Heat stress
- Decontamination
- Prevention of slip, trip, and fall hazards
- Safe lifting techniques and safe work practices

The 40-hour training requirement is applicable to personnel permanently assigned to the field effort. Workers temporarily assigned to the field effort and having a limited role in field activities, such as biological and cultural resources personnel, will only be required to have the 24-hour initial training. All field personnel will receive annual 8 hour refresher training.

Field personnel will also receive 3 days of field experience under the direct supervision of a trained, experienced supervisor.

Work supervisors will receive an additional required 8 hours of training that address supervisory responsibilities and obligations in maintaining an effective health and safety program.

6.3.2 *Medical Examinations*

Field personnel performing work activities inside the designated work area will conform to the requirements specified in EM 385-1-1 and following medical monitoring requirements.

On-site personnel will have completed a physical examination in accordance with the requirements of 29 CFR Part 1910.120(f), and 29 CFR Part 1926.65. Examination requirements will be specified by the medical program administrator. The results of medical examinations are to be evaluated by a physician specializing in occupational medicine. The medical evaluation includes a judgment of the employee's ability to use respiratory protective equipment and to participate in hazardous waste site activities. The examining physician must document his evaluation/recommendations on an appropriate Health Status Report (HSR) or similar form of documentation. Restrictions of on-site activities may be required for personnel with certain medical conditions that could be aggravated by chemical exposure or physical demands at the site. Each employee is responsible for notifying the Health and Safety Professional of physical or medical restrictions. The Health and Safety Professional will then ensure that project management observes and enforces the restrictions.

A copy of each person's HSR will be made available for review following a request from the Health and Safety Professional. Employees who have not received a medical examination within the past 12 months (365 days) will:

- Be required to immediately obtain an appropriate medical examination and provide a copy of the HSR to the Health and Safety Professional for review prior to starting work on the project.

- Be removed from the project until the appropriate medical exam has been performed and a copy of the associated HSR has been provided to the Health and Safety Professional.

- Project management or other personnel who are not routinely exposed to site hazards may be waived from the annual medical examination requirement by the Health and Safety Professional provided that they meet the following criteria:

- Medical examinations must be received on a frequency determined by the medical program administrator, but not to exceed every 2 years.

- Site activities performed by the exempted personnel must not entail exposure to contaminants in excess of the permissible exposure limits or other exposure limitations as outlined in this APP.

7.0 SAFETY AND HEALTH INSPECTIONS

7.1 Responsibilities

Project management personnel identified in paragraph 1.4 Responsibilities and Lines of Authority are responsible to ensure the required site safety and health requirements are being met. Personnel qualifications are identified in resumes listed in Appendix H.

In addition to these requirements, The Project QC Manager will conduct and document daily safety and occupational health inspections in their daily QC Logs.

7.2 External Inspections / Certifications

MARRS/Earth Tech do not anticipate the use of external sources to provide safety inspections.

8.0 SAFETY AND HEALTH EXPECTATIONS, INCENTIVE PROGRAMS, COMPLIANCE

8.1 Safety Program Goals, Objectives, and Accident Experience Goals

The main objective of the MARRS Health and Safety Program is the prevention of accidents. Most accidents are avoidable and are usually the result of causes attributed to unsafe procedures or methods, unsafe physical conditions, unsafe equipment, unsafe human acts or a combination thereof. Accordingly, it is the policy of MARRS to:

- Provide a safe and healthy working environment for all employees.
- Comply with all federal, state, and local laws and regulations regarding employee health and safety.
- Comply with all USACE EM 385-1-1 requirements.
- Eliminate occupational deaths, injuries, and illness by incorporating preventive procedures to identify and remove recognizable hazards from the work place.
- Hold supervisory personnel accountable for the safety performance on their projects and regularly measure their achievements in controlling accidents and losses.
- Train employees in safe methods and procedures and require compliance with safety rules and regulations.
- Establish and enforce a disciplinary policy for violations of the Health and Safety Program.
- Strive for accident-free performance on all projects.
- Monitor the effectiveness of the company Health and Safety Program to ensure provision of a safe and healthful working environment.

8.2 Procedures for Noncompliance

Compliance with the MARRS Health and Safety Program and Accident Prevention Plan and related documents shall be a condition of employment, applying to all employees, including supervisory and management personnel. Supervisory and management personnel at all levels shall be given the direct responsibility for taking immediate corrective action when a violation is observed and shall be responsible for compliance by each member of their crew. Subcontractors will maintain their own disciplinary program.

Any employee exhibiting reckless, wanton disregard for safety will be terminated immediately. Any action, which deliberately puts any person in direct danger of personal injury, shall also be grounds for immediate dismissal. With the exception of these serious offenses, which will result in immediate termination, all safety infractions will be handled the same. Any person using an unsafe work practice, or any foreman, supervisor or manager knowingly allowing the use of an unsafe work practice will be subject to the following disciplinary procedures:

- **First Safety Violation**—Employee will receive a verbal reprimand. A written record will be placed in the employees personnel file stating date, time, and nature of the safety violation.

- **Second Safety Violation**—Employee will receive a written warning from the supervisor or manager during a formal consultation with the employee and his direct supervisor. A copy of the written warning will be placed in the employee's personnel file and will include time and nature of the safety violation.

- **Third Safety Violation**—Employee will be provided written copies of the first and second violations from the supervisor or manager during a formal consultation with the employee and his direct supervisor. Employee will be removed from site, given time off, or in extreme situations, dismissed immediately

8.3 Managers and Supervisors Accountability Policy

Employee compliance with policies, procedures and regulations will help ensure the effectiveness of MARRS Corp's safety program. Management is responsible for ensuring that all safety and health policies and procedures are clearly communicated, understood by all employees, and enforced fairly and uniformly. MARRS Injury and Illness Prevention Program require all MARRS managers and supervisors to comply with the following practices to ensure safety goals are met:

- Ensure that all meetings where safety and health issues are addressed occur on a routine basis

- Review, post and distribute safety and health information that may affect employee safety

- Review accident and near miss incident reports

- Present effective and creative ways to improve safe job performance

- Encourage employees to report safety hazards and ensure they understand there will be no reprisal for doing so

- Respond to employee safety concerns in a timely manner

- Develop and implement written special operating procedures or standard maintenance procedures for unusual or non-routine hazardous job tasks

9.0 ACCIDENT REPORTING

9.1 Exposure Data

The Exposure Data reporting will include monthly man-hours worked and updated OSHA Form 300 shall be submitted by MARRS to CESPL.

9.2 Accident Investigation, Reports, and Logs

Minor accidents will be investigated by MARRS to identify cause and incorporate hazard control measures. In the event of a major accident, CESPL will be notified and invited to perform the investigation. OSHA will be notified within 24 hours if there is a death or serious injury in which employees are admitted to the hospital.

All injuries, illnesses, or near-misses (accidents where personnel could have been injured) that occur on site during field activities associated with this project will be promptly reported to the Project Manager and the Health and Safety Professional in accordance with MARRS Injury and Illness Prevention Plan

If any MARRS employee is injured and requires medical treatment, the Project Manager will contact the CESPL Program Manager (PM) immediately. The Project Manager will initiate a written report using OSHA Forms 300, 300A, and 301 (Injuries and Illnesses Log, Summary, and Incident Report). The Site Manager and Project Manager will complete Forms 301 and 300 then forward to the PM for completion of Form 300A. The report will then be provided to the Health and Safety Professional before the end of the following shift.

All injuries, including those involving minor first-aid treatment (minor cuts and bruises), will be documented by the SSO in his working log. At the request of the Health and Safety Professional, the SSO will provide the Health and Safety Professional with information pertaining to the types and quantity of minor first-aid treatment performed at a given work location.

If any employee of a subcontractor is injured, documentation of the incident will be accomplished in accordance with the subcontractor's procedures; however, copies of all documentation (which at a minimum must include the OSHA Form 301 or equivalent) must be provided to the SSO within 24 hours after the accident has occurred.

9.3 Notification of Major Accidents

9.3.1 OSHA Notification

OSHA requires notification within 8 hours in the event of a fatality or severe injury requiring hospitalization. The Health and Safety Professional will make such notifications to OSHA and, therefore, must receive the information in time to make the notification without penalty.

9.3.2 Client Notifications

In the event of an accident/injury during RI field activities, the Project Manager and, if needed, the Health and Safety Professional will immediately inform CESPL of the incident and provide them with the USACE Accident Investigation Report (ENG Form 3394) within 24 hours. The Project Manager or assigned representative will make all notifications to CESPL.

10.0 MEDICAL SUPPORT

10.1 On-Site Medical Support

The SSO has full responsibility and commensurate authority for responding to any emergency that may occur at any MGRC work site until MARRS is relieved by proper authority. The SSO must notify and coordinate response actions with the Site Manager and cooperate with local authorities. MARRS will provide the SSO with cell phone and radio communication for use in the field along with telephone numbers and frequencies that may be used to communicate with emergency services providers and cognizant authority. See paragraph 1-9 Accident Reporting for notification requirements.

10.2 Off-Site Medical Arrangements

Due to the large area of operations for the MGRC project, three medical facilities have been identified for use in the event of an accident/injury of project personnel. Attachment a Site Safety and Health Plan contains all information on these facilities including contact telephone numbers, driving instructions and maps for each location.

10.3 First Aid And CPR Qualifications

Because of the remoteness of activities at designated fieldwork areas, at least two persons qualified in first aid and CPR will be assigned to each work site. Appropriate first aid and CPR training must have been obtained from the American Red Cross, the U.S. Bureau of Mines, or equivalent organization, in accordance with the guidelines of the Journal of the American Medical Association, Standards and Guidelines for Basic Life Support (CPR - reprinted 1993) and by OSHA for the training of designated first-aid providers.

11.0 PERSONAL PROTECTIVE EQUIPMENT

11.1 General

The harmful effects that chemical substances and the work environment may have on the human body often necessitate the use of protective equipment. Proper selection of PPE takes into account a number of factors. The protection required against different types and various concentrations of chemicals can be quite varied. The tasks to be performed and the probability of exposure to the substance must also be considered when specifying PPE.

All use of PPE will conform to the minimum requirements specified in the EM 385-1-1. Selection of appropriate PPE is specified in the THA found in Attachment C.

Although contact with contaminated materials is not anticipated, workers will still be subject to physical hazards associated with the planned work activities. Accordingly, all personnel in any MARRS-controlled work area will utilize the following Level D PPE, which shall be referred to as the “Standard Work Uniform”:

- Shirt with sleeves (tank tops not permitted)
- Long pants

- Work boots (ankle-covering, closed uppers)
- Hard hat (during work with overhead hazards)
- Safety glasses (American National Standards Institute [ANSI] Z87.1-1989), required only during disposal operations
- Protective eyewear for ultra-violet, dust, or small flying objects
- Gloves (optional during geophysical and surveying activities; mandatory during vegetation removal and intrusive work)
- Hearing protection (mandatory during noise-generating activities).

As necessary, personnel will use leather work gloves. Cold weather gear can supplement this ensemble as necessary, based on outdoor conditions during work activities.

11.2 Head Protection

MARRS employees and visitors will wear hard hats if there is a potential of exposure to flying/falling objects or overhead hazards. Hard hats can be removed in break areas or where their use presents potential safety hazards. If hard hats are worn during MEC/UXO operations, they will be secured to prevent falling off and striking a potential UXO. Hard hats (when worn) will meet the requirements of ANSI Z89.1-1986, as indicated by the manufacturer's label. Ear protection and face shields may be attached to hard hats.

11.3 Eye Protection

The use of eye protection by all personnel will meet the requirements specified in EM 385-1-1 with the following minimum requirements:

- Provide adequate protection against the particular hazards for which they are designed
- Be reasonably comfortable when worn under the designated conditions
- Fit snugly and not unduly interfere with the wearer's movements
- Be durable
- Be easily cleaned and sanitized.

Contact lenses do not provide adequate eye protection. Contact lens wearers must use the same additional eye protection as non-lens wearers. Persons whose vision requires correction and who are required to wear eye protection may wear goggles or spectacles of one of the following types:

- Spectacles whose protective lenses provide optical correction (prescription)

- Goggles that can be worn over corrective (prescription) spectacles without disturbing the adjustment of the spectacles

- Goggles that incorporate corrective (prescription) lenses mounted behind the protective lenses.

The SSO will ensure that suitable eye protection is available and provided to all on-site personnel. Eye protection worn by UXO personnel will be secured with a strap to prevent the glass/goggles from falling off and striking a potential UXO.

11.4 Hearing Protection

Hearing protection will be worn, as appropriate, whenever sound-pressure levels exceed 85 decibel A-weighted sound level (dBA) steady-state expressed as a time-weighted average (TWA) or 140 dBA impulse, or as desired by individual workers when working around noise-producing equipment. Employees who may be exposed to hazardous noise must be participants in a hearing conservation program that meets the requirements of 29 CFR Part 1910.95. Hearing protection worn by personnel will comply with the requirements of 29 CFR Part 1910.95(j), and will provide a minimum noise reduction rating (NRR) of at least 21. As a minimum, protection against the effects of hazardous noise exposure will be enforced whenever the sound-pressure level exceeds the limits and exposure times specified in Table D-1.

Table D-1. Permissible Noise Exposures

Duration (hours)	Sound-pressure level dBA slow response
8	90
6	92
4	95
3	97
2	100
1-1/2	102
1	105
½	110
¼	115

dBA = decibel A-weighted sound level

Hearing protection will be worn at all times when normal conversation becomes difficult at distances of 3 feet or less, such as during the operation of heavy equipment.

11.5 Foot Protection

All workers entering designated fieldwork areas will wear appropriate protective footwear that provides ankle support and adequate protection for the hazards specific to the work to be performed. Sandals and other open-top footwear are not acceptable in designated fieldwork areas. Personnel will wear work boots (ankle-covering, closed uppers). Due to interference with the metal detectors, personnel will not be required to wear steel-toed boots while performing, or in proximity to others performing, tasks involving the operation of a metal detector.

11.6 Hand Protection

Employees will use appropriate hand protection when exposed to hazards that could cause injury to the hands. Gloves must resist puncturing and tearing, as well as provide any necessary chemical resistance.

11.7 Traffic Safety Vests

When working on or near public roads and when working around moving vehicles at designated field work areas, all personnel will wear traffic safety vests, shirts, or similar upper wear colored so as to provide high visibility to drivers/operators (e.g., day-glow orange).

12.0 PLANS

12.1 Layout Plans (04.A.01)

Not Applicable.

12.2 Emergency Response Plans

12.3 Procedures and tests (01.E.01)

See Attachment A.

12.4 Spill plans (01.E.01, 06.A.02)

Outside of sampling preservatives and fuel for equipment operations, no chemicals will be brought on site.

12.5 Firefighting Plan (01.E.01, 19.A.04)

An ABC rated fire extinguisher will be available during all activities.

12.6 Posting of Emergency Telephone Numbers (01.E.05)

Emergency numbers will be available on site. See Attachment A.

12.7 Wild land fire prevention plan (09.K.01)

Not Applicable.

12.8 Man overboard/abandon ship (19.A.04)

Not Applicable.

12.9 Hazard Communication Program (01.B.06)

Not Applicable. See Attachment A.

12.10 Respiratory Protection Plan (05.E.03)

Not Applicable. Respiratory protection will not be required for this project. See Attachment A.

12.11 Health Hazard Control Program (06.A.02)

Not Applicable. See Attachment A.

12.12 Lead Abatement Plan (06.B.05 & specifications)

Not Applicable.

12.13 Asbestos Abatement Plan (06.B.05 & specifications)

Not Applicable.

12.14 Abrasive Blasting (06.H.01)

Not Applicable.

12.15 Confined Spaces (06.I)

Excavations greater than 4 feet in depth will be considered confined spaces. Where there is the potential for buildup of vapors, confined space entry procedures will be followed. See Attachment A.

12.16 Hazardous Energy Control Plan (12.A.07)

Not Applicable.

12.17 Critical Lift Procedures (16.C.18)

Not Applicable.

12.18 Contingency Plan for Severe Weather (19.A.03)

See Attachment A.

12.19 Access and Haul Road Plan (8.D.1)

Not Applicable. Sites will be accessed from established roads.

12.20 Demolition Plan (Engineering and Asbestos Surveys) (23.A.01)

Not Applicable.

12.21 Emergency Rescue (Tunneling) (26.A.05)

Not Applicable.

12.22 Underground Construction Fire Prevention and Protection Plan (26.D.01)

Not Applicable.

12.23 Compressed Air Plan (26.I.01)

Not Applicable.

12.24 Formwork and Shoring Erection and Removal Plans (27.B.02)

Not Applicable.

12.25 Jacking Plan (Lift) Slab Plans (27.D.01)

Not Applicable.

12.26 Safety and Health Plan (28.A.02)

See Attachment A.

12.27 Blasting plan (29.A.01)

Not Applicable. See Appendix K.

12.28 Diving plan (30.A.13)

Not Applicable.

12.29 Plan for Prevention of Alcohol and Drug Abuse (Defense Federal Acquisition Regulation Supplement (DFARS) Subpart 252.223-7004)

In accordance with MARRS Substance Abuse Policy, Employee Relations Part 034-040 (part of MARRS Policies and Procedures Manual), employees are not allowed to be under the influence of alcohol or drugs during site activities and are discouraged from drinking alcohol in general.

12.30 Fall Protection Plan (Section 21)

Not Applicable. No work from heights is anticipated during this project.

12.31 Steel Erection Plan (27.E.01)

Not Applicable.

12.32 Night Operations Lighting Plan (16.C.19.d)

Not Applicable. Activities will be performed during daylight hours only.

12.33 Site Sanitation Plan (Section 02)

Not Applicable. A portable sanitary facility will be provided on the site, as indicated in paragraph 1.13.4 below.

12.34 Fire Prevention Plan (09.A.01)

See Attachment A.

13.0 CONTRACTOR INFORMATION

13.1 Excavation Activities

A competent person is defined as one who is capable of identifying existing and predictable hazards in the surroundings and working conditions. The Excavation Competent Person:

- Is responsible for conducting daily inspections of excavation, adjacent areas, and protective systems prior to each shift.
- Must have knowledge of soils and soil classification
- Understands design and use of protective systems
- Has the authority to stop work and take corrective action when conditions change
- MARRS personnel must notify and be granted authorization from the excavation competent person prior to entering any excavation.
- MARRS personnel must follow all excavation requirements established by the competent person.

Excavations > 4 feet will be considered confined spaces. Where there is the potential for the build-up of vapors, excavations will be considered permit-required confined spaces. Entry into permit-required confined spaces will be performed in accordance with all EM 385-1-1 confined space entry procedures.

- The competent person must inspect the trench and/or excavation everyday and after everyday hazard increasing event. Documentation of this inspection must be maintained on site at all times.

- Excavations must be protected from cave-ins by adequate protective systems unless the excavation is less than 5 feet in depth and a competent person determine there is no indication of cave-in or the excavation is made entirely in stable rock that is not fractured.

- Prior to excavating at a location, buried utilities in the area must be identified.

- MARRS personnel must not enter any excavation where protective systems are deficient at any time, for any reason. The competent person must be notified of such conditions.

If the project site is suspected of MEC contamination, the UXO team will conduct a reconnaissance and MEC avoidance to provide clear access routes to each site prior to excavation crews entering the area. The following procedures will be implemented:

- Prior to excavation crews entering MEC sites, the UXO team will conduct a reconnaissance and MEC avoidance activities to provide clear access routes to each site.

- The UXO team will identify and clearly mark the boundaries of a clear approach path for the excavation crews, vehicles, and equipment to enter the site. This path will be, at a minimum, twice the width of the widest vehicle. No personnel will be allowed outside any marked boundary.

- On MEC sites, a backhoe or other heavy equipment may be used by the UXO team to carefully excavate anomalies if believed to be at a greater depth than can be efficiently hand excavated. Heavy equipment will be used no closer than 1 foot to anomalies located during excavation. A team consisting of at least a UXO Technician and an equipment operator will perform the anomaly excavation with heavy equipment.

13.2 Scaffolding

No operations requiring scaffolding will be conducted during the MGRC RI/FS.

13.3 Medical and First Aid

Medical Emergencies - Medical emergencies can be described as situations that present a significant threat to the health of personnel. These can result from injuries resulting in trauma, chemical exposures, heat stress, cold stress, and poisonous snake and insect bites. Medical emergencies must be dealt with immediately, and proper care should be administered. This may be in the form of first aid and emergency hospitalization. In the event of a medical emergency:

- All injured individuals may be given appropriate emergency first aid by a qualified individual trained in first aid.

- Severely injured personnel will be transported to Tehachapi Valley Healthcare District Hospital via Life Flight request through 911.

- All on-site and off-site emergency response organizations will be notified of project activities prior to implementation of field operations

First-Aid Kits - First-aid kits will be available and maintained in each vehicle for use by personnel certified in first aid and CPR by the American Red Cross or equivalent. First-aid kits supplied for use during the RI field activities will comply with the provisions of ANSI Standard Z308.1, "Minimum Requirements for Industrial Unit-Type First-Aid Kits," as well as EM 385-1-1, Section 03.B. The first-aid kits will be supplied and maintained by MARRS's subcontractors and MARRS and made available for use by all site personnel associated with project activities.

Eyewash Units - An eyewash unit meeting the requirements of ANSI Standard Z358.1-1990 will be available in the field. This unit shall be capable of supplying hands-free irrigation for both eyes for at least 15 minutes at a flow rate of at least 0.4 gallon per minute. For each field team, one eyewash meeting the requirements of 29 CFR Part 1926.50(g) (a 1-pint wash bottle) is deemed sufficient.

13.4 Sanitation

Housekeeping - During site activities, work areas will be continuously policed for identification, collection, and removal of trash and debris. Excess debris and trash will be collected and stored in an appropriate container (e.g., plastic trash bags, garbage can, roll-off bin) prior to disposal. At no time will debris or trash be intermingled with contaminated materials. Under no circumstances will MEC items be placed in trash bins. Project personnel observed disposing of MEC items with municipal wastes will be removed from the site.

Potable Water - An adequate supply of potable water will be available for field personnel consumption. Potable water will be provided in the form of bottled water with individual use cups provided as well as adequate disposal containers. Potable water containers will be carried by each field crew and properly identified in order to distinguish them from non-potable water sources. A minimum water ration of 1.5 gallons per person per day will be available during field activities, and crew members will be encouraged to drink plenty of fluids.

Non-potable Water - Non-potable water may be used for ground wetting prior to MEC destruction; it is not to be used for drinking purposes. Outlets dispensing no potable water will be conspicuously marked

"CAUTION - WATER UNFIT FOR DRINKING, WASHING, OR COOKING."

Toilet Facilities - In accordance with EM 385-1-1, a minimum of one toilet facility will be provided for each sex in a group of 20 or fewer employees. Where toilet rooms may be occupied by no more than one person at a time, can be locked from the inside, and contain at least one toilet seat, separate toilet rooms for each gender need not be designated. Toilets will be situated at or near the site of the project personnel in the field.

Washing Facilities - In accordance with EM 385-1-1, employees will be provided washing facilities (e.g., buckets with water and soap) at each work location. Water and hand soap (or similar substance) will be used by each employee following exit from the exclusion zone, prior to breaks, and at the end of daily work activities. Washing facilities will be located at each vehicle in the field.

13.5 Personal Protective Equipment

See section 11.0 *Personnel Protective Equipment* for specific information.

13.6 Fire Prevention Procedures and Equipment

Prior to the start of field activities, local fire departments will be notified and their procedures for fire prevention will be implemented. Also, prior to each day's disposal operation, these fire departments will be notified of locations and time of detonations (approximate). During all disposal operations, the UXOS/SSO will ensure procedures/steps in Appendix K of the Work Plan are followed to reduce the potential for fires.

A fire extinguisher capable of extinguishing Class A, B, and C fires will be available for use in each field vehicle for each field team at all times, and personnel will be readily aware of the location of the fire extinguisher for immediate use. At a minimum, the fire extinguisher will carry a rating of 1A/10B/C.

13.7 Machinery and Mechanized Equipment

Heavy Equipment Operations:

MARRS authorizes only those employees qualified by training or previous experience to operate material handling heavy equipment.

- Equipment must be checked at the beginning of each shift to ensure the equipment is in safe operating condition and free of apparent damage. The check should include: service brakes, parking brakes, emergency brakes, tires, horn, back-up alarm, steering mechanism, coupling devices, seat belts and operating controls. All defects shall be corrected before the equipment is placed in service. Documentation of this inspection must be maintained on site at all times.

- Equipment must be on a stable foundation such as solid ground or cribbing; outriggers are to be fully extended.

- Equipment must not be used to lift personnel; loads must not be lifted over the heads of personnel.

- Equipment, or parts thereof, which are suspended must be substantially blocked or cribbed to prevent shifting before personnel are permitted to work under or between them. All controls shall be in a neutral position, with the motors stopped and brakes set.

- Equipment that is operating in reverse must have a reverse signal alarm distinguishable from the surrounding noise or a signal person when the operator's view is obstructed.

- When equipment is used near energized power lines, the closest part of the equipment must be at least 10 feet from the power lines < 50 kilovolts (kV). Provide an additional 4 feet for every 10 kV over 50 kV. A person must be designated to observe clearances and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means. All overhead power lines must be considered to be energized until the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded.

- Underground utility lines must be located before excavation begins

- Operators loading/unloading from vehicles are responsible for seeing that vehicle drivers are in the vehicle cab or in a safe area.

- The parking brake shall be set whenever equipment is parked; wheels must be chocked when parked on inclines.

- When not in operation, the blade/bucket must be blocked or grounded; the master clutch must be disengaged when the operator leaves the cab. When equipment is unattended, power must be shut off, brakes set, blades/buckets landed, and shift lever in neutral.

FORKLIFTS - Forklifts may be required for materials movement during project activities. Forklifts present the potential for damage to equipment, materials, and personnel by impaling or striking personnel or materials with the forklift tines. Additionally, forklifts may tip if they are incorrectly loaded, driven at excessive speeds or operated with the forks too high.

The following rules apply whenever a forklift is used on the project:

- A rated lifting capacity must be posted in a location readily visible to the operator.

- A forklift truck must not be used to elevate employees unless a platform with guardrails, a back guard, and a kill switch is provided on the vehicle. When guardrails are not possible, fall arrest protection is required.

- The subcontractor operating the forklift must post and enforce a set of operating rules for forklift trucks.

- Only trained and authorized drivers will operate forklifts.

- Employees must not ride on the forks.

- Employees must never be permitted under the forks (unless forks are blocked).

- The driver must inspect the forklift once a shift and document this inspection.

- The operator must look in the direction of travel and must not move the vehicle until all persons are clear of the vehicle.

- Forks must be carried as low as possible.

- The operator must lower the forks, shut off the engine, and set the brakes (or block the wheels) before leaving the forklift operator's position unless maintenance or safety inspections require the forklift to be running.

- Trucks must be blocked and have brakes set when forklifts are driven onto their beds.

- Extreme care must be taken when tilting elevated loads.

- Every forklift must have operable brakes capable of safely stopping it when fully loaded.
- Forklifts must have parking brakes and an operable horn.
- When the operator is exposed to possible falling objects, industrial trucks must be equipped with overhead protection (i.e., hard canopy).

13.8 Electrical Safety

- Only qualified personnel are permitted to work on unprotected energized electrical systems.
- Only authorized personnel are permitted to enter high-voltage areas.
- Do not tamper with electrical wiring and equipment unless qualified to do so. All electrical wiring and equipment must be considered energized until lockout/tagout procedures are implemented.
- Inspect electrical equipment, power tools, and extension cords for damage prior to use. Do not use defective electrical equipment, remove from service.
- All temporary wiring, including extension cords and electrical power tools, must have GFCIs installed.
- Extension cords must be:
  - Equipped with third-wire grounding.
  - Covered, elevated, or protected from damage when passing through work areas.
  - Protected from pinching if routed through doorways.
  - Not fastened with staples, hung from nails, or suspended with wire.
- Electrical power tools and equipment must be effectively grounded or double-insulated UL approved.
- Operate and maintain electric power tools and equipment according to manufacturers' instructions.
- Maintain safe clearance distances between overhead power lines and any electrical conducting material unless the power lines have been de-energized and grounded, or where insulating barriers have been installed to prevent physical contact. Maintain at least 10 feet from overhead power lines for voltages of 50 kV or less, and 10 feet plus ½ inch for every 1 kV over 50 kV.
- Temporary lights shall not be suspended by their electric cord unless designed for suspension. Lights shall be protected from accidental contact or breakage.
- Protect all electrical equipment, tools, switches, and outlets from environmental elements.

13.9 Public Safety

A large portion of the MGRC RI/FS will be conducted on public property. In areas where the public will be in the vicinity of field teams, signs (bilingual) will be posted to identify the areas and if demolition operations will be conducted, the Site Manager, SUXO, and SSO will ensure the proper coordination is accomplished to ensure the public is not exposed to any hazards.

13.10 Chemical Warfare Material

Potential exposure to chemical warfare material (CWM) on this site is not anticipated. If UXO personnel encounter any UXO that cannot be positively identified as a conventional UXO, the following steps will be taken:

- All work will cease.
- Workers will evacuate upwind.
- The site will be secured.
- The SUXO and/or SSO will notify the Site Manager, Project Manager, and the USACE Los Angeles District Program Manager.
- The USACE Los Angeles Program Manager will notify the Technical Escort Unit and ensure that Department of Army EOD is notified if needed.

13.11 Biological Hazards and Controls

Snakes - Snakes typically are found in underbrush and tall grassy areas. If you encounter a snake, stay calm and look around; there may be other snakes. Turn around and walk away on the same path you used to approach the area. If a person is bitten by a snake, wash and immobilize the injured area, keeping it lower than the heart if possible. Seek medical attention immediately. **DO NOT** apply ice, cut the wound, or apply a tourniquet. Try to identify the type of snake: note color, size, patterns, and markings.

Ticks - Ticks typically are in wooded areas, bushes, tall grass, and brush. Ticks are black, black and red, or brown and can be up to one-quarter inch in size. Wear tightly woven light-colored clothing with long sleeves and pant legs tucked into boots; spray **only outside** of clothing with permethrin or permanone and spray skin with only DEET (N,N-diethyl-meta-toluamide); and check yourself frequently for ticks. If bitten by a tick, grasp it at the point of attachment and carefully remove it. After removing the tick, wash your hands and disinfect and press the bite areas. Save the removed tick. Report the bite to human resources. Look for symptoms of Lyme disease or Rocky Mountain spotted fever). Lyme: a rash might appear that looks like a bull's eye with a small welt in the center. Rocky Mountain Spotted Fever: a rash of red spots under the skin 3 to 10 days after the tick bite. In cases, chills, fever, headache, fatigue, stiff neck, and bone pain may develop. If symptoms appear, seek medical attention.

Bees and other Stinging Insects - Bee and other stinging insects may be encountered almost anywhere and may present a serious hazard, particularly to people who are allergic. Watch for and avoid nests.

Keep exposed skin to a minimum. Carry a kit if you have had allergic reactions in the past, and inform the SSO and/or buddy. If a stinger is present, remove it carefully with tweezers. Wash and disinfect the wound, cover it, and apply ice. Watch for allergic reaction; seek medical attention if a reaction develops.

Hantavirus - Hantavirus pulmonary syndrome (HPS) is a deadly disease transmitted by infected rodents through urine, droppings, or saliva. Humans can contract the disease when they breathe in aerosolized virus. HPS was first recognized in 1993 and has since been identified throughout the United States. Although rare, HPS is potentially deadly. Rodent control in and around the home remains the primary strategy for preventing hantavirus infection.

Blood borne Pathogens - Exposure to blood borne pathogens may occur when rendering first aid or cardiopulmonary resuscitation (CPR), or when coming into contact with landfill waste or waste streams containing potentially infectious material. Exposure controls and PPE are required as specified in URS Standard Operating Procedure HS-36, *Blood borne Pathogens*. Hepatitis B vaccination must be offered before the person participates in a task where exposure is a possibility.

Mosquitoes - Due to the recent detection of the West Nile Virus in the southeastern U.S., it is recommended that **preventative measures** be taken to reduce the probability of being bitten by mosquitoes whenever possible. Mosquitoes are believed to be the primary source for exposure to the West Nile Virus as well as several other types of encephalitis. The following guidelines should be followed to reduce the risk of these concerns for working in areas where mosquitoes are prevalent.

- Stay indoors at dawn, dusk, and in the early evening.
- Wear long-sleeved shirts and long pants whenever you are outdoors.
- Spray clothing with repellents containing permethrin or DEET since mosquitoes may bite through thin clothing.
- Apply insect repellent sparingly to exposed skin. An effective repellent will contain 35% DEET. DEET in high concentrations (greater than 35%) provides no additional protection.
- Repellents may irritate the eyes and mouth, so avoid applying repellent to the hands.
- Whenever you use an insecticide or insect repellent, be sure to read and follow the manufacturer's DIRECTIONS FOR USE, as printed on the product.

Note: Vitamin B and "ultrasonic" devices are NOT effective in preventing mosquito bites.

14.0 SITE-SPECIFIC HAZARDS AND CONTROLS

Personnel assigned to this project may encounter a wide range of hazards associated with MEC, terrain, plants, animals, weather, and potential physical and chemical hazards related to their activities. These include both the hazards presented by the work location and those that may be encountered during the completion of the required SOW. Summarized hazard analyses for each hazard are presented in Attachment C. The potential hazards include, but are not limited to:

- Physical contact with MEC/UXO during MEC handling and disposal operations
- Explosion, blast, fragmentation, and fire risk produced during MEC-related activities
- Hazardous noise produced during detonation operations
- Weather hazards such as heat stress, and lightning (work sites in foothills may present exposure hazards).
- Transportation of explosives to the site for use in detonation of MEC-related items
- Hazards involving underground and overhead utilities such as communication, electrical, or gas service.
- Slippery and unstable surfaces, steep grades, gullies obscured by vegetation, and uneven rocky terrain encountered during ground reconnaissance activities (slips, trips, and falls).
- Mechanical hazards during investigations
- Hazards from dangerous plants
- Hazards from dangerous animals
- Hazards from stinging and biting insects, spiders, and other arthropods
- Ergonomics/repetitive motions (back injuries, handling, or carrying)

ATTACHMENT A:

SITE SAFETY AND HEALTH PLAN (SSHP)

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SITE SAFETY AND HEALTH PLAN

1.0 SITE DESCRIPTION AND CONTAMINATION CHARACTERIZATION

1.1 Site Description

On 19 August 1944 the Department of the Navy took possession of the land that would comprise the Mojave Gunnery Range "C" (MGRC). During World War II these lands were used as an air-to-ground training area with six reported stationary ground targets and one reported mobile target. Additionally, guided missiles were used on targets set up near the northern area of the range. After the war MGRC was used for testing and evaluation of pilot-less aircraft by both the Naval Air Station (NAS) Mojave and the Army. The Marines returned to Mojave in 1951 and closed the airfield during which time the Marine Corps terminated the leases for MGRC effective 31 December 1951.

1.2 Contamination Characterization

Ten munition response areas (MRA)s have been identified for investigation during the MGRC RI/FS based on records reviews and site visits. Seven MRAs were initially developed, based on target information provided in the "Archive Search Report findings for the Former Mojave Gunnery Range "C", Kern County, California, Project Number J09CA728101, April 2002" Three additional MRAs were developed in accordance with the findings of the Draft Aerial Photo Analysis Site Visit Report, former Mojave Gunnery Range "C" RI/FS, 19 March 2007. MRAs selected for investigation during the RI/FS are shown in Figure 1-2.

1.2.1 MRA-01. (Areas A and B)

MRA-01 is a cluster of targets (Area A) and buffer area (Area B) encompassing 2,906 ac of land as indicated in ASR J09CA728101. The occurrence of this target and buffer area within private land creates a substantial potential for public exposure to MEC originating from bombing targets. MRA-01 has confirmed MEC presence. Munitions confirmed are the 20mm target practice (TP) projectiles, MK 15 100-lb practice bombs, AN-MK23 3-lb. practice bombs, and 2.75 High Explosive (HE) Folding Fin Aerial Rockets (FFAR), and 2.75 Inert FFAR have been confirmed on this MRA.

1.2.2 MRA-02, (Areas C and D)

MRA-02 is suspected to have been a convoy target (Area C) made up of tanks and vehicles due to the vehicle debris located in the area and a buffer area (Area D) encompassing 828 ac as identified in ASR J09CA728101. The occurrence of this target and buffer area within private land creates a substantial potential for public exposure to MEC originating from bombing targets. MRA-02 has confirmed MEC presence. Munitions confirmed are evidence of high explosive bombs and rockets.

1.2.3 MRA-03, (Area E)

MRA-03 is a former 20-mm aircraft strafing range encompassing 26 ac of land as indicated in ASR J09CA728101. The occurrence of this target within private land creates a substantial potential for public exposure to MEC originating from strafing targets. MRA-03 has a potential MEC presence. Munitions confirmed are the 20 mm TP projectiles.

1.2.4 MRA-04, (Areas F and G)

MRA-04 is a former bombing target (Area F) and buffer area (Area G) encompassing 499 ac) of land as indicated in ASR J09CA728101. The occurrence of this target and buffer area on private land creates a substantial potential for public exposure to MEC originating from bombing targets. MRA-04 has confirmed MEC presence. Munitions confirmed are the AN-MK23 3-lb practice bombs, 20mm TP projectiles; and 50 cal small arms ammunition.

1.2.5 MRA-05, (Areas H and I)

MRA-05 is a former rocket target (Area H) and a buffer area (Area I); encompassing 289 ac of land as indicated in ASR J09CA728101. The occurrence of this target and buffer area within private land creates a substantial potential for public exposure to MEC originating from rocket targets. MRA-05 has confirmed MEC presence. Munitions confirmed are the 2.25-inch practice rockets (SCAR), 2.75-inch FFAR, and 20mm TP projectiles. An intact VS-50 anti-personnel landmine was also located but it is believed to have been a result of an inadvertent drop resulting from mistaken coordinates with an adjacent range.

1.2.6 MRA-06, (Area J)

MRA-06 is a suspected bombing target encompassing 31ac of land as indicated in ASR J09CA728101. No evidence of munitions usage was encountered during previous site visits. This MRA is considered to have no MEC presence.

1.2.7 MRA-07, (Area K)

MRA-07 is a suspected bombing target encompassing 31 ac of land as identified in ASR J09CA0728101. No evidence of munitions usage was encountered during previous site visits. This MRA is considered to have no MEC presence.

1.2.8 MRA-08, (APA areas 5 and 6)

APA Areas 5 and 6 were described in the APA Addendum as “Target with concentric rings measuring 100 and 250 feet in diameter” The area the targets were reported to be approximately 2 acres each. During the visual inspection of the area, 2.25 rocket igniter leads and water/sand filled practice bomb debris were observed throughout the areas. After analysis of the data it was determined that APA Areas 5 and 6 may be an indication of a MRA. APA

Areas 5 and 6 were combined due to their close proximity and recommended as additional an MRA with the addition of a 150 foot buffer around the 250 foot circles, and designated as MRA-08. The area of the resultant MRA-08 is approximately 16 acres. The occurrence of this target on private property creates a substantial potential for public exposure to MEC originating from this target.

1.2.9 MRA 9, (APA Area C)

APA Area C was described in the APA Addendum as "Cleared Areas" encompassing approximately 57 acres. During the visual inspection of the area, bomb fragments were observed throughout the entire area, along with .50 cal cartridge cases, links and projectiles, 2.25 rocket igniter leads and water/sand filled practice bomb debris. After analysis of the data it was determined that APA Area C may be an indication of a MRA. APA Area C was recommended as additional an MRA with 1500 foot radius from center of apparent target, and was designated as MRA-09. The area of the resultant MRA-09 is approximately 163 acres. The occurrence of this target on private property creates a substantial potential for public exposure to MEC originating from this target.

1.2.10 MRA 10 (APA Areas E, E1, and E2)

Area E was described in the APA Addendum as "Hill 2443 In Section 31 T12n, R10w" encompassing approximately 39 acres. During the visual inspection of the area, a large amount of bomb fragments and lighter fragments representative of a target were observed. Rock similar to that used to mark other MGRC targets, was observed on the hill and thought to have been used as a target marker.. After analysis of the data it was determined that APA Areas E/E1/E2 may be an indication of a MRA. APA Areas E/E1/E2 was recommended as additional an MRA with 1500 foot radius from center of apparent target, and was designated as MRA-10. The area of the resultant MRA-10 is approximately 163 acres. The occurrence of this target on private property creates a substantial potential for public exposure to MEC originating from this target.

2.0 HAZARD/RISK ANALYSIS

Specific details are provided in the Accident Prevention Plan paragraph 1.14.

3.0 STAFF ORGANIZATION, QUALIFICATIONS, AND RESPONSIBILITIES

Ensuring safe performance of site operations and maintenance of a safe and healthy work site is the responsibility of everyone assigned to the site; therefore, all MARRS personnel as well as other site workers (and visitors, as appropriate) are responsible for the following:

- Complying with the APP and all other safety and health guidelines;
- Taking all necessary precautions to prevent injury to themselves and to their fellow employees;

- Continued alertness to all potentially harmful situations and immediately informing the SSO of any such conditions;
- Performing only those tasks that they have been trained to do and can be done safely;
- Notifying the SSO of any special medical conditions (i.e., allergies, contact lenses, diabetes) that could affect their ability to perform site operations safely;
- Notifying the SSO of any prescription and/or over-the-counter medication that they are taking that might cause drowsiness, anxiety, or other unfavorable side effects;
- Preventing spillage and splashing of materials to the greatest extent possible;
- Practicing good housekeeping by keeping the work area neat, clean, and orderly;
- Immediately reporting all injuries, no matter how minor, to the SSO;
- Maintaining site equipment in good working order, and reporting defective equipment to the SSO
- Properly inspecting and using the PPE required by the APP or the SSO.

The health and safety requirements listed in this APP may change as work progresses; however, no changes are to be made without the knowledge of the responsible MARRS personnel listed below and are subject to approval of CESPL Safety and Project Managers. The safety organization structure and responsibilities for the MGRC project personnel are described in the APP paragraph 1-4.

4.0 TRAINING

Project personnel will comply with the training and certification requirements identified in the Accident Prevention Plan paragraph 1-6.

5.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

Project personnel will use the appropriate PPE as identified in the Accident Prevention Plan paragraph 1-11.

6.0 MEDICAL SURVEILLANCE

All personnel on site will have completed a pre-placement or annual physical examination that complies with the requirements of 29 CFR 1910.120(f) and 29 CFR 1926.65 (f) and have been certified as fit to work by an Occupational Physician certified in Occupational Medicine by the American Board of Preventive Medicine, or who by necessary training and experience is board eligible.

Certification of medical surveillance program participation will be appended to this SSHP. The certification will include:

- Employee name
- Date of last examination

- Name of examining physician

All personnel are screened for drug use in accordance with the MARRS Drug/Alcohol Abuse Program. All medical records will be maintained in accordance with 29 CFR 1910.1020.

7.0 EXPOSURE MONITORING / AIR SAMPLING PROGRAM

Exposure monitoring of personnel or perimeter air sampling will not be required for this project.

8.0 HEAT AND COLD STRESS

8.1 Heat Stress

Heat stress can be a significant field site hazard, especially for workers wearing protective clothing. Depending on the ambient conditions and the work being performed, heat stress can occur very rapidly, within as little as 15 minutes. Site personnel will be instructed in the identification of a heat stress victim, the first-aid treatment procedures for the victim, and the prevention of heat stress casualties.

Workers should be encouraged to immediately report any difficulties or heat-related problems that they may experience or observe in fellow workers. Supervisors should use such information to alter the work-break schedule to accommodate any problems. During breaks, workers should be encouraged to drink plenty of water or other liquids to replace lost fluids and to help cool off. Should any worker exhibit signs of severe heat distress, such as profuse sweating, extreme confusion and irritability, or pale, clammy skin, that worker should be relieved of all duties at once and made to rest in a cool location and drink plenty of water. Anyone exhibiting symptoms of heat stroke (red, dry skin, or unconsciousness) should be taken immediately to the nearest medical facility, and steps should be taken to cool the person during transportation (e.g., clothing removal, wet the skin, air conditioning). Severe heat stress (heat stroke) is a life-threatening condition that must be treated by a competent medical authority.

Heat Stress Monitoring

The prevention of heat stress-related accidents/illnesses is best performed through continuous observation of employees and routine heat stress awareness training activities. Heat stress monitoring can be accomplished using one of the techniques discussed below.

Any results obtained from monitoring techniques should be used as guidance only. To properly mitigate the effects of heat stress, it is necessary to establish a work routine that incorporates adequate rest periods to allow workers to remove protective clothing, drink one cup of fluids every 15-20 minutes (vital when extreme sweating is occurring), rest, and recover. The frequency and length of such work breaks must be determined by the individual work location supervisor based upon factors such as the ambient temperature and sunshine, the amount of physical labor being performed, the physical condition of the workers, and protective clothing being used. While heat stress measurement techniques provide guidance in optimizing this routine, breaks must always be sufficient to prevent workers from manifesting symptoms of heat stress, regardless of monitoring results.

Evaluation of heat stress to determine appropriate work/rest cycles, will be performed whenever fieldwork activities are occurring. The Basic Instrument Measurements Method shown below will be used during this project in situations for which the use of chemically protective clothing is not required.

Basic Instrument Measurements Method: This method will be used to monitor heat stress only when workers are not using chemically protective clothing. The Wet Bulb Globe Temperature (WBGT) value will be determined using a WBGT meter (Reuter-Stokes 214 DL or equivalent), and compared with the values shown in Table A-1 to determine appropriate work/rest cycles.

Table A-1. WBGT Values for Level D Work/Rest Cycles

	^{o}F–WBGT		
Work-Rest Regimen	Light Work	Moderate Work	Heavy Work
Continuous Work	86	80	77
75% Work – 25% Rest	87	82	78
50% Work – 50% Rest	89	85	82
25% Work – 75% Rest	90	88	86

Source: Re-printed from ACGIH's 1999 Threshold Limit Values for Chemical Substances and Physical Agents

Direct Observation: This method can be used as a substitute for the Basic Instrument Measurements. At the start of the work day, each worker's baseline pulse rate will be determined in beats per minute (bpm). Worker pulse rates will then be measured at the beginning and end of each break period. As recommended by the American Conference of Government Industrial Hygienists (ACGIH), each worker's maximum heart rate at the start of any break should be less than 180 minus the worker's age bpm. If this value is exceeded for any worker, the duration of the following work period will be decreased by at least 10 minutes. At the end of each work period all workers' heart rates must have returned to within +10 percent of the baseline pulse rate. If any worker's pulse rate exceeds this value, the break period will be extended for at least 5 minutes, at the end of which pulse rates will be re-measured and the end-of-break criteria again applied.

8.2 Heat-Related Illnesses

The following guidance can be used in the identification and treatment of heat-related illness.

Mild Heat Strain. This is the mildest form of heat-related illness. Victims exhibit irritability, lethargy, and significant sweating. The victim may complain of headache or nausea. This is the initial stage of overheating, and prompt action at this point may prevent more severe heat-related illness from occurring.

First Aid: Provide the victim with a work break during which he/she may relax, remove any excess protective clothing, and drink cool fluids. If an air conditioned spot is available, this is an ideal break location. Once the victim shows improvement, he/she may resume working; however, the work pace should be moderated to prevent recurrence of the symptoms.

Heat Exhaustion. This condition usually begins with muscular weakness, dizziness, nausea, and a staggering gait. Vomiting is frequent. The bowels may move involuntarily. The victim is very pale, with clammy skin, and he or she may perspire profusely. The pulse is weak and fast, and breathing is shallow. Fainting may occur unless the victim lies down.

First Aid: Immediately remove the victim from the work area to a shady or cool area with good air circulation (avoid drafts or sudden chilling). Remove all protective outerwear. Call a physician. Treat the victim for shock. (Make the victim lie down, raise feet 6-12 inches, and keep victim warm, but loosen all clothing.) If the victim is conscious, it may be helpful to provide sips of water. Transport victim to a medical facility as soon as possible.

Heat Stroke. This is the most serious of heat illnesses, and represents the collapse of the body's cooling mechanisms. As a result, body temperatures often rise to 105 degrees (°)-110° Fahrenheit (F). As the victim progresses toward heat stroke symptoms such as headache, dizziness, nausea, and oppression can be noted, and the skin is observed to be dry, red, and hot. Sudden collapse and loss of consciousness follows quickly, and death is imminent if exposure continues. Heat stroke can occur suddenly.

First Aid: Immediately evacuate the victim to a cool and shady area. Remove all protective outerwear and all personal clothing. Lay the victim on his or her back with the head and shoulders slightly elevated. Apply cold, wet towels or ice bags to the head, armpits, and thighs. Sponge off the bare skin with cool water or rubbing alcohol, if available, or even place the victim in a tub of cool water. The main objective is to cool without chilling the victim. Give no stimulants or hot drinks. Since heat stroke is a severe medical condition requiring professional medical attention, emergency medical help should be summoned immediately to provide on-site treatment of the victim and proper transport to a medical facility.

9.0 STANDARD OPERATING PROCEDURES, ENGINEERING CONTROLS, WORK PRACTICES

9.1 Contact with MEC/UXO Materials

Non-UXO-qualified field personnel should avoid contact with potential or identified MEC items. All field crew members should make use of their senses to alert them to potentially dangerous situations (e.g., presence of strong, irritating, or nauseating odors) and report them to the SSO/SUXOS if encountered.

9.2 Site Awareness

Field team members will be familiar with the physical characteristics and requirements of investigations, including:

- Entering exclusion zones through appointed access points

- Accessibility to equipment and vehicles
- Communication
- Hot zones (areas of known or suspected MEC and/or contamination)
- Site access
- Emergency procedures and evacuation assembly points
- Locations of protective and emergency equipment and relevant first-aid procedures.

9.3 Exposure Minimization

The number of personnel and equipment in the UXO operations exclusion zone area should be minimized, consistent with site operations.

9.4 CWM Procedures

MARRS and its subcontractors are not authorized to conduct CWM operations under this SOW. In the event CWM has been identified, all personnel will immediately withdraw upwind to a safe location. MARRS will notify the appropriate agencies. Two UXO technicians will secure the site until relieved by the designated CESPL representatives. In the event of a CWM incident:

- Work activities will cease and all project personnel will be evacuated from the work location (exclusion zone). The evacuation will proceed in a direction opposite of the critically affected area, with all personnel assembling in a pre-designated location outside of the job site proper (determined and presented as part of the daily tailgate safety briefing).
- A head count will be taken by the MARRS Site Manager or designated alternate of the assembled employees, and any injured individuals shall be administered first aid.
- If not present at the affected work location, the MARRS SSO and the Site Manager will be contacted immediately.
- If an unplanned MEC detonation or a chemical contamination release has occurred, notify the local fire department. Other emergency response actions should proceed as specified in the emergency response action guidance in the Emergency Contingency Plan.

A unique, site-wide signal for emergency evacuation (e.g., use of a horn) and designation of the evacuation assembly location will be established by the MARRS SSO and briefed to all workers during initial site-specific training. Any changes mandated by changing site conditions will be determined by the MARRS SSO and communicated to workers during the daily tailgate safety briefing.

9.5 Smoking

Smoking will not be permitted inside “active” designated fieldwork areas or exclusion zones. Consumption of alcoholic beverages or controlled substances is prohibited at the site.

9.6 Fire Prevention

Open flames, smoking, and other sources of ignition are not authorized at any designated fieldwork area. Smoking will be permitted only in designated areas. Prior to commencement of the field investigation, MARRS will notify the appropriate local fire agencies and departments of specific work areas and activities. Special fire prevention procedures for disposal operations are discussed in Appendix K.

9.7 Buddy System

All on-site personnel will use the buddy system for every entry into designated fieldwork areas. The work crew will be paired in teams of two or more. Team members will maintain visual contact with each other and be alert for signs of heat/cold stress or toxic exposure, including visual and non-visual effects of toxic exposure such as:

- Changes in complexion and skin discoloration
- Changes in coordination or demeanor
- Excessive salivation and papillary response
- Changes in speech pattern
- Headaches, dizziness, blurred vision
- Nausea, cramps
- Irritation of eyes, skin, or respiratory tract

9.8 Response to Distress

Anyone exhibiting distress symptoms should be taken immediately to the nearest medical facility, and steps should be taken to relieve the distress during transportation.

10.0 SITE CONTROL

The following site control procedures and requirements are applicable to all RI field investigation and MEC-related activities. Control will be established around each work location to protect the public and other workers not essential to the MEC operation from unnecessary exposure to MEC/UXO, contaminants, or other hazards. The MARRS SSO or designated work location safety representative will be responsible for delineating these areas based upon requirements set forth herein, results of monitoring obtained during work operations, and site-specific conditions (e.g., proximity of roads or buildings, terrain peculiarities).

10.1 Designated Fieldwork Area Requirements

Initial requirements for designated fieldwork areas are presented here as a guide. However, MEC- and location-specific factors must also be considered. It must be emphasized that designated fieldwork area limits must be sufficient to prevent anyone outside of the area from being exposed to any MEC/UXO-

related activities/materials, contaminated/hazardous substances, or airborne contaminants released during work operations, as well as physical hazards created by site activities.

10.2 Designated Munitions and Explosives of Concern Minimum Separation Distances

The designated distance for initial set up of an MEC MSD will be based on the maximum fragmentation distance of the MEC/UXO to be disposed. Fragmentation distances are identified in Appendix G of the Work Plan. The applicable MSD will be observed in all directions from the outer extent of the item being disposed. Designated site personnel will maintain this distance throughout MEC disposal activities. However, this distance can be adjusted depending on positive identification of the MEC/UXO encountered and use of engineering controls. If needed, signs will be posted stating "Danger, Keep Out, Explosive Operations" at the boundaries of the MSD.

As an additional safety measure, an MSD of 200 feet will be maintained between investigation teams during site activities.

10.3 Communications

Effective communication is essential to safe working conditions and the successful completion of the project. External communication will be maintained by MARRS using wire or cellular telephone communication systems. Radios will be available to field crews for continuous contact with the command post during ground reconnaissance, MEC disposal operations, monitoring activities, and all other investigative activities to maximize communications with emergency response units (e.g., police, ambulance teams, fire department). Each work team will be equipped with a radio (or cellular phone if in an area where one can be used) to ensure rapid communication with the project management. Radio nets will help to facilitate on-site communications where visual and vocal communications are not possible.

11.0 PERSONAL HYGIENE AND DECONTAMINATION

11.1 Sanitary Facilities

MARRS will provide and maintain portable sanitary facilities with at least one unit for each 15 workers, in accordance with EM 385-1-1, Section 2. The sanitary facilities will be maintained and serviced at regular intervals. They will be located adjacent to or near the current work activities.

11.2 Washing Facilities

MARRS will provide hand-washing facilities, convenient to the work area, including potable washing water and soap. All hand-washing facilities will be supplied with soap, paper towels, and trash receptacles. All washing facilities or areas will be kept clean and free of trash. All field personnel will wash their hands and face before eating, drinking, and leaving the site for the day.

11.3 Personnel Decontamination

Effective decontamination is not simply removing contamination, it begins with preventing contamination. PPE prevents the wearer from becoming contaminated, and good work practices reduce contamination of protective clothing and equipment.

11.4 Level D Decontamination

No Level D personnel decontamination is anticipated for this project.

11.5 Waste Control and Disposal

Solid trash, paper towels, and other items used in the work areas will be classified as industrial solid waste and containerized/disposed of as such.

12.0 EQUIPMENT DECONTAMINATION

No field equipment decontamination is anticipated for this project. All rental vehicles will be washed free of dirt when excessively dirty and at the completion of the project. Vehicle washing should be performed at a vehicle wash facility.

13.0 EMERGENCY EQUIPMENT AND FIRST AID

The emergency equipment listed in Table A-2 will be on-site, stored in the designated location, and available for use during operations. A dedicated emergency vehicle shall be available in proximity to the work sites. All emergency equipment shall be maintained in proper working order and inspected by the SSO at least weekly to ensure completeness and proper working order. The results of inspections are documented on the On-Site Safety Meeting Record. In the event that any disposable items are expended, the SSO ensures timely replacement. Site operations shall not be conducted if the required emergency equipment is not available on-site.

Table A-2. Emergency Equipment

Emergency Equipment	Number per Location	Location Where Emergency Equipment is Stored	Operation Where Emergency Equipment is Required
First Aid/Burn Kit	1 each	Team Support Vehicle, SSO Vehicle	Each team has complete sets of first aid equipment. Additional first aid gear is available in the SSO vehicle.
Eye Wash	1 each	All First Aid Kits	
CPR Pocket Mask	1 each	All First Aid Kits	
Disposable Latex Gloves	5 each	All First Aid Kits	

Stretcher	1 each	Designated Safety Vehicle	

14.0 EMERGENCY RESPONSE AND CONTINGENCY PROCEDURES

The frequency and severity of emergency situations can be dramatically reduced through proper implementation of the APP. However, if an emergency does occur, quick, decisive action is required since delays in minutes can create or escalate life-threatening situations. In an emergency situation, site personnel involved in emergency response and rescue must be prepared to respond immediately and all required equipment must be on hand, in proper working order, and ready to use. To ensure rapid, effective response to a site emergency, the procedures and contingency plans outlined in this section are implemented prior to and during the conduct of any site activities involving exposure to safety and health hazards.

15.0 EMERGENCY RESPONSE PLAN

15.1 Pre-Emergency Planning

Prior to the conduct of site operations, MARRS site representatives contacted and met with the appropriate local authorities. The purpose of the meetings was to inform local authorities of the nature of the site activities to be performed under the APP, and the potential hazards that the conduct of these activities poses to site personnel, the environment, and the general public. MARRS personnel were informed as to the type of emergency services available through the local authorities and were given the contact phone numbers for these services. In the event that evacuation of the general public is required due to either normal site operations or an emergency event, the MARRS Site Manager and Site Safety Officer are responsible for contacting the appropriate local officials who execute and coordinate an evacuation.

15.2 Personnel Roles, Training, and Communication

In the event of a medical or other emergency (fire, accident, imminent endangerment), the cognizant team leader (or other project personnel if the team leader is incapacitated) will **immediately** withdraw personnel to the designated Safe Area (if necessary) and contact the **Site Safety Officer (SSO)** (or Senior UXO Supervisor, if SSO unavailable) who will provide specific instructions to the Team Leader (or other person) and contact the pertinent Emergency Response network.

Medical evacuation requirements are determined by the emergency first responder. Personnel requiring additional treatment are evacuated to the hospital. Any further treatment or evacuation is arranged by the hospital.

Site personnel will receive specialized training that will be given by the SSO and conducted prior to initiating site activities involving safety and health hazards. Training will be documented using the site training log and includes the subjects listed below:

- Emergency chain-of-command;

- Communication methods and signals;
- Emergency equipment and PPE;
- Removing injured personnel from the site; and
- Emergency contacts, telephone numbers, and hospital routes described below.

EMERGENCY TELEPHONE NUMBERS

Site Safety Officer……..TBD

Senior UXO Supervisor……..TBD

California City Fire Department (including Air 19 Life Flight)…… 911/(760) 373-3700

California City Police Department 911/(760) 373-8606

Kern County Sheriff's Office (Mojave Substation)… 911/(661) 824-7130

Hall Air Ambulance (661) 716-3822

California Highway Patrol……...911/(661) 824-2408

U.S. Army Corps of Engineers

CESPL Project Manager (Larry A. Sievers)……(213) 452-3990

CESPL Munitions and Explosives Safety Specialist (Billy J. Allen)……..(858) 676-6766

Information and Response Organizations

CHEMTREC……(800) 424-9300

National Poison Control Center……..(800) 458-5842

Centers for Disease Control (CDC)……..(770) 452-4100

National Response Center……(800) 424-8802

EPA Environmental Response Team (ERT)……..(201) 321-6660

Technical Escort Unit (TEU)…….....Contact Site Manager

Local EOD Unit…….....Contact Site Manager

MARRS Site Personnel

MARRS SUXOS

Armando Lucero…….....(619) 818-8455

MARRS MEC Quality Control Manager

Rod Reeve.....(760) 578-6194

MARRS Site Safety Officer

Mark Isabell…….. (559) 905-7964

MEDICAL CARE:

PRIMARY FACILITY

Tehachapi Valley Healthcare District
115 West "E" Street
Tehachapi, California 93561-1900
(661) 228-3241
Hours: 24 hr / 7 days a week

Directions to Tehachapi Valley Healthcare from California City, Mojave, and Highway 58 (Figure C-A-1 and C-A-2). Take California Highway 58 West towards Tehachapi for approximately 14.5 miles. Take the East Tehachapi Blvd Exit 151 to Tehachapi. Turn left at East Tehachapi Blvd and proceed for approximately 2 miles. Turn left at S. Green Street and head south for approximately .25 miles. Turn right at W E Street. Tehachapi Valley Healthcare is located on the corner of Curry Street and E Street.

ALTERNATE FACILITIES:

California City Clinic
9300 North Loop Blvd. #B
California, CA 93505
(760) 373-1256
Hours: Monday – Friday 8am to 7pm / Saturday 9am to 3pm / Closed Sunday

Note – California City Clinic will only be used for minor injuries.

Directions to California City Clinic from California Highway 14: (Figure C-A-3 and C-A-4) Take California City Boulevard and head east approximately 7 miles. Turn north (left) on North Loop Boulevard for approximately 1 mile. California City Clinic is located on the right side of the road as you pass the intersection of North Loop and Hacienda Boulevard intersection.

Directions to California City Clinic from Neuralia Road: (Figure C-A-4) Head north on Neuralia for approximately 6.5 miles. Turn right on California City Boulevard and head east approximately. Turn north (left) on North Loop Boulevard for approximately 1 mile. California City Clinic is located on the right side of the road as you pass the intersection of North Loop and Hacienda Boulevard intersection.

Mojave Rural Clinic
2041 Belshaw Street
Mojave, CA
(661) 824-4511
Hours: Monday – Friday 8:30 am to 4 pm / Closed for lunch from 12 to 1:30 pm

Note – Mojave Clinic will only be used for minor injuries.

Directions to Mojave Clinic from California City via Highway 14 (Figure C-A-5 and C-A-6). From California City Blvd take Hwy 14 south into Mojave for approximately 2.75 miles. Highway 14 will merge with Highway 58 at the first traffic light. Turn left at the traffic light and head south for approximately .5 miles. Turn left on Belshaw Street and head east approximately .5 miles. Mojave Clinic will be on the right side of the road.

Directions to Mojave Clinic from California Highway 58 (Figure C-A-5 and C-A-6). Take Hwy 58 south into Mojave for approximately 3 miles. Turn right onto Highway 14/58 and head north approximately .5 miles. Turn right on Belshaw Street and head east approximately .5 miles. Mojave Clinic will be on the right side of the road.

Figure C-A-1 Directions from California City, Mojave, and Hwy 58

Figure C-A-2 Directions from Hwy 58 and Tehachapi Blvd

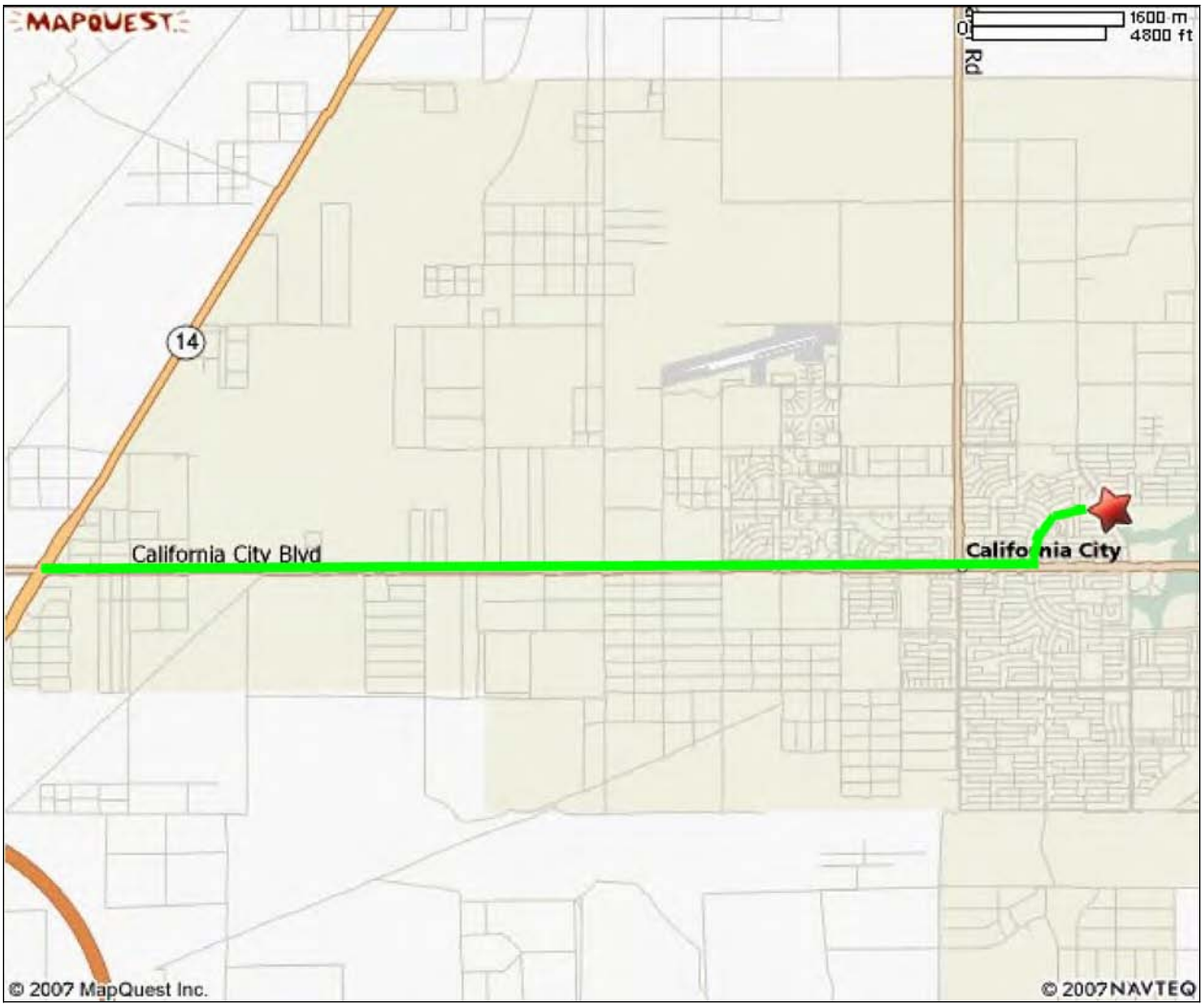

Figure C-A-3 Directions from Hwy 14

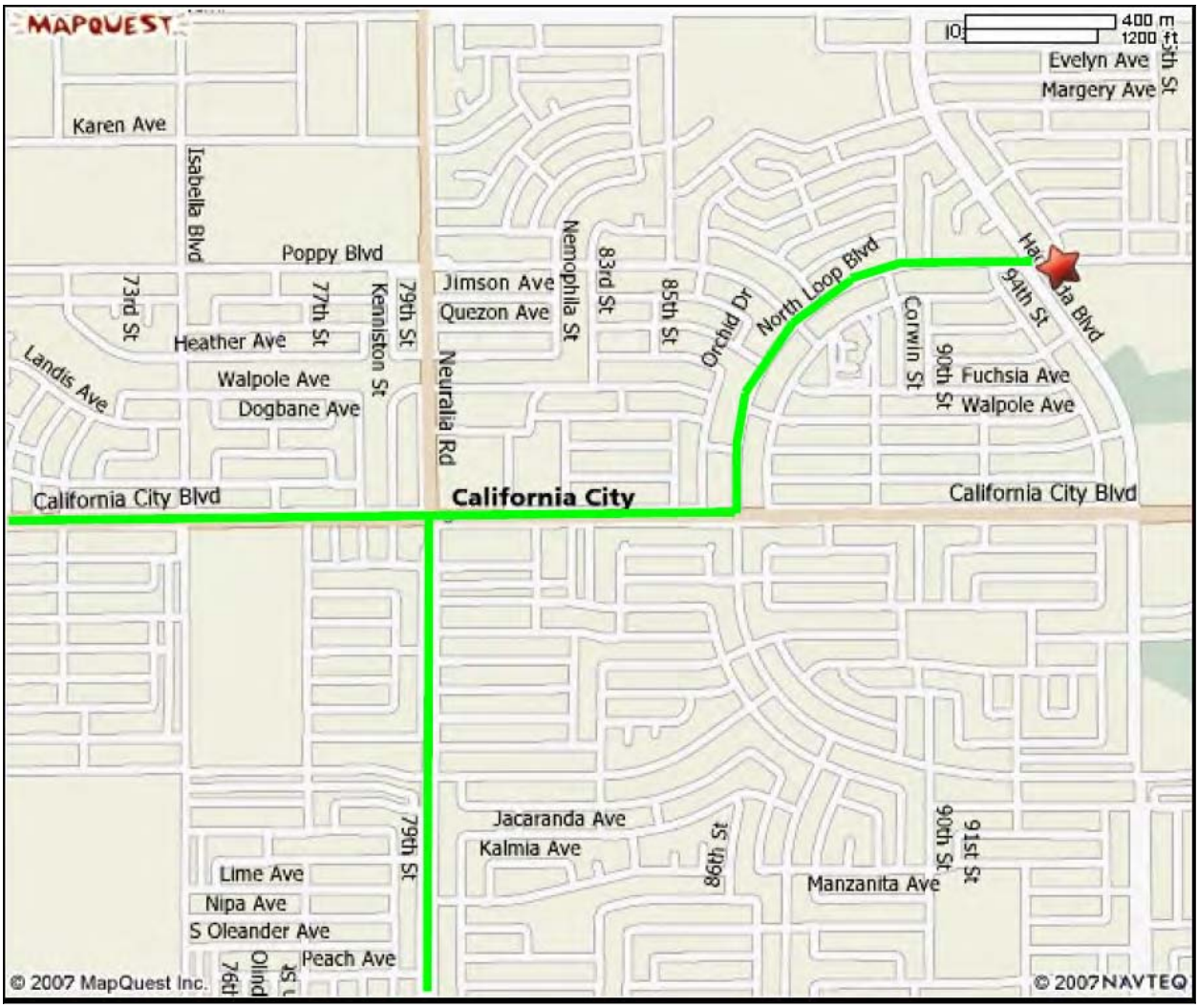

Figure C-A-4 Directions from Hwy 14 and Neuralia Road

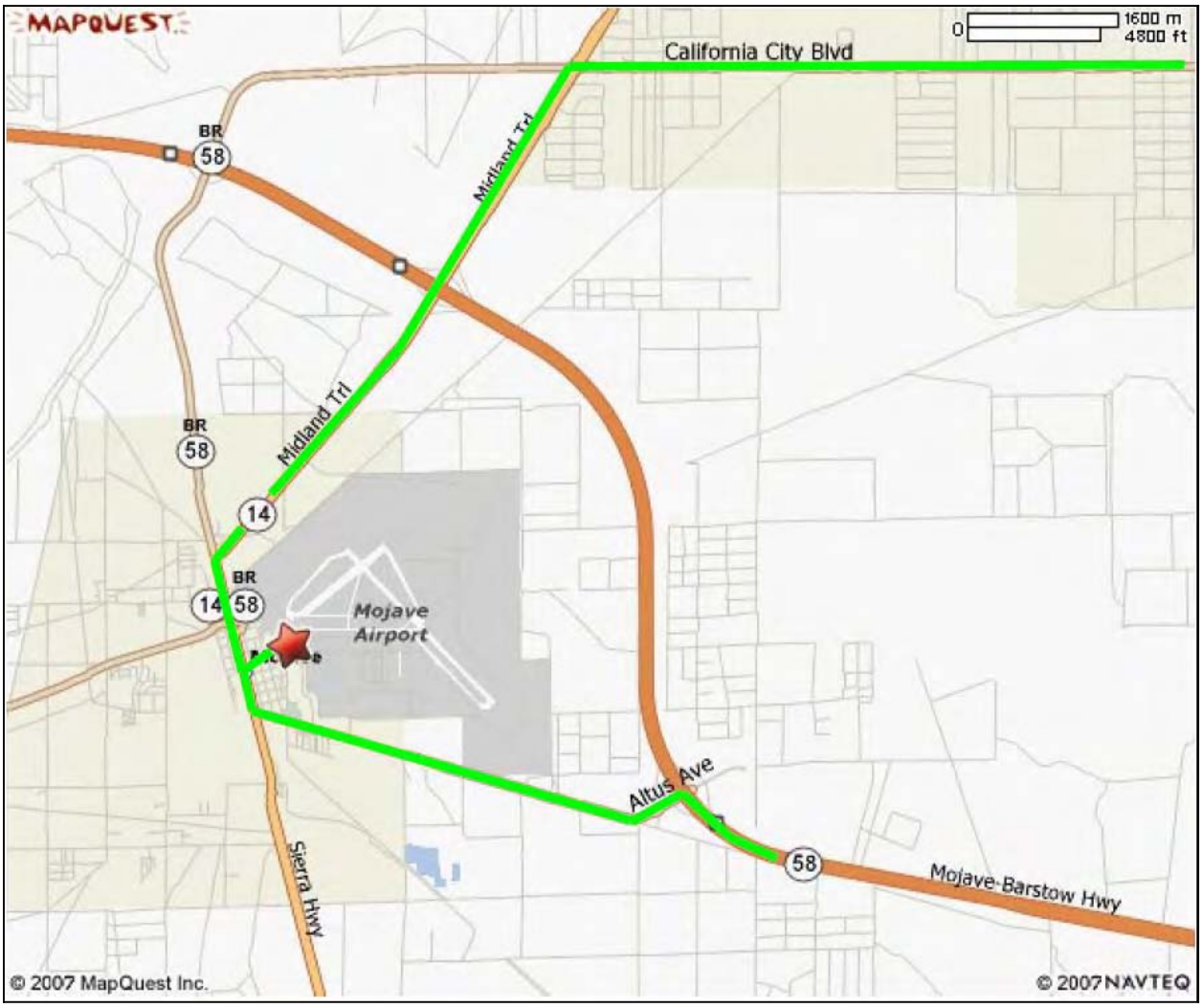

Figure C-A-5 Directions from California City via Hwy 14 and Hwy 58 By-Pass

Figure C-A-6 Directions from Hwy 14 and Hwy 58 By-Pass

15.3 Emergency Recognition

During the development of this SSHP, great attention has been given to identifying potential safety and health hazards associated with the conduct of site activities. Once identified, these hazards were assessed to determine the risk that these hazards could result in an emergency situation. Contingency plans for responding to the potential emergency situations have been developed and are included in this section. The potential emergencies that may result during the conduct of site activities are as follows:

- Injury or illness
- Fire/explosion
- Inclement weather
- Injury or Illness

In the event of an emergency involving personal injury or illness, immediate response is key in preventing further injury/illness and providing comfort to the affected party. When personnel are injured or overcome by illness, the following procedure is followed:

- Upon notification of the occurrence and nature of the injury/illness, the SSO, if deemed necessary, summons emergency personnel.
- On-site personnel transport the injured/ill victim to the rally point using the stretcher.
- The SSO or SM assesses the severity of the injury/illness, directing the site personnel to provide immediate life support if required.
- If immediate life support is not required, or once the victim is stabilized, and if required, transport victim to the appropriate medical facility for further attention.

To ensure that adequate first aid supplies are available, the size and number of first aid kits will be sufficient to accommodate the maximum number of people (including government personnel and visitors) on-site at any given time. The kits will be located at each work site and the location of the kit made known to all site personnel. Additional kits are also maintained in each vehicle. Kit locations are provided with adequate water and other supplies necessary to cleanse and decontaminate burns, wounds, or lesions.

15.4 Fires and Explosions

Fire Extinguishers - The occurrence of a fire on-site presents a serious threat to all site personnel, the environment, and the general public. To ensure immediate, aggressive response to emergencies, dry-chemical-type fire extinguishers are available at each individual work site. Dry chemical fire extinguishers are also provided at any other site location where flammable materials may present a fire risk, such as the petroleum, oils, and lubricants storage area. Additionally, a fire extinguisher rated at least 2A:10B:C will be located with each piece of heavy equipment and in each site vehicle. Fire extinguishers are inspected, and the results recorded monthly, by the SSO.

Small Fires - A small fire is defined as a fire that can be extinguished with a 4A:20B:C type fire extinguisher. In the event of a small fire, site personnel take the following actions:

- All unnecessary personnel are evacuated from the immediate area to an upwind location;
- Extinguish the fire using portable fire extinguishers or by smothering from an upwind location;
- Request emergency response assistance (ambulance, fire, police) as needed;
- Do not attempt to extinguish a fire, even a small one, involving explosives; and
- Notify the SSO, SM, and MARRS Project Manager.

Large Fires - In the event of a large fire or small fire that cannot be extinguished, the following actions are taken:

- All unnecessary personnel will be evacuated from the site to an upwind location
- If it can be accomplished safely, the SSO will direct personnel to move vital equipment/supplies from the fire path
- SSO orders the appropriate level of protective clothing to be worn by personnel fighting the fire
- To the extent possible, and with available resources, fight the fire from an upwind location
- At no time should attempts be made to extinguish a fire involving explosives
- Notify the Fire Department, SSO, SM, and MARRS Project Manager

Explosion - In the event of an unplanned detonation, all nonessential personnel will evacuate and help secure the site; the SSO requests the required support equipment and personnel. It is essential that the site be evacuated and no one allowed to re-enter, except to possibly save a life, until 30 minutes, or longer, after the explosion. The SSO determines what actions, if any, are appropriate.

Inclement Weather

In the event of inclement weather [high winds, electrical storms, tornadoes, extremely hot weather (> 100°F), or extremely cold weather (<0°F)], it may be necessary to cease operations and evacuate the site. The SSO is responsible for contacting the U.S. Weather Service on a daily basis. If necessary, the weather service may be contacted on a more frequent basis.

15.5 Additional Hazards

In the event that additional site or task hazard information becomes available during the conduct of site activities, this information will be assessed by the HSM to determine whether the contingency plans in this section need to be updated.

15.6 Safe Distances and Places of Refuge

Prior to commencement of field activities, the Site Manager, SUXOS, and Site Safety Officer will identify safe distances, and places of refuge for each MRA. These locations will be briefed to all personnel during initial site briefings and will be posted in the MGRC field office, and all site vehicles. Locations will also be included in the daily and tailgate safety briefings.

15.7 Emergency Site Control and Security

In an emergency, it is imperative that site control and security be maintained. To control site personnel, the OSIC will utilize the Site Entry/Exit Log to ensure all personnel are present or accounted for at the assembly points. Depending upon site size and configuration, weather and wind conditions, and the nature of the emergency, the following will, as applicable, be used to maintain site security:

- Erect flagging or barrier tape to prevent accidental entry
- Use vehicles to block access routes to the site, but ensure they can be moved rapidly if emergency vehicles must use the access route.

15.8 Evacuation Routes

The established evacuation route is checked by the SSO and then traveled by all site personnel prior to start of site activities to establish familiarity with the route. Emergency meeting points will vary from day to day depending on work location. The daily tailgate safety briefing will discuss the planned evacuation route with the field crew.

15.9 Emergency Medical Treatment and First Aid

Emergency response procedures include all steps to be taken for notifying, evaluating, reacting to, documenting, and following up on a given emergency situation. To ensure all necessary elements are covered, the procedural steps outlined in this paragraph are implemented for each emergency, regardless of its nature.

Notification - Once the SSO has been informed of the emergency, the SSO alerts site personnel to the emergency using radio communication. This is done to:

Notify personnel and get their attention

Stop work activity as required

Lower noise levels in order to speed and simplify communication

Begin emergency and/or evacuation procedures

If on-site MARRS personnel or off-site emergency personnel are to enter the site in response to the emergency, the SSO, to the extent possible, notifies response personnel about the nature of the emergency, to include:

- What happened and when it happened

- Where on-site the emergency situation occurred
- Who is involved and, if possible, the cause of the emergency
- The extent of damage and what hazards may be involved
- What actions should be taken

Assessing the Emergency – Available information related to the emergency and the on-site response capabilities should be evaluated and the information listed below obtained to the extent possible:

- What happened:
    - Type of incident
    - Casualties involved:
        - Victims (number, location, and condition)
        - Treatment required
        - Missing personnel
    - Cause of incident
    - Extent of damage to structures, equipment, and terrain
    - What could happen from this point; consider
        - Emergency affecting the general public or the environment
    - What can be done to mitigate the situation; consider
        - Equipment and personnel needed for rescue and hazard mitigation
        - Number of uninjured personnel available for response
        - Resources available on site
        - Resources available from off-site response groups and agencies
        - Time needed for off-site response resources to reach the site
        - Hazards involved in rescue and response

15.10 Emergency Alerting and Response Actions

Based on the information collected during the emergency assessment, the general actions listed below are taken, with some actions being conducted concurrently. No one is to attempt emergency response/rescue until the situation has been assessed and the appropriate response outlined by the SSO.

Enforce the Buddy System:

- Allow no one to enter a hazardous area without a partner
- Personnel in the EZ should be in line-of-sight of or in communication with the SSO or his designee.

- Survey Casualties:
  - Locate all victims and assess their condition
  - Determine resources needed for stabilization and transport
- Assess Existing and Potential Hazards and Determine:
  - Whether and how to respond
  - The need for evacuation of site personnel and off-site population
  - The resources needed for evacuation and response
- Request Aid:
  - Contact the required off-site/on-site personnel or facilities, such as ambulance, fire department, police, etc.

Allocate Resources:

- Allocate on-site personnel and equipment to rescue and initiate incident response operations

Control:

- Assist in bringing the hazardous situation under complete or temporary control and use measures to prevent the spread of the emergency (control fire, secure site, etc.)

Extricate:

- Remove or assist victims from the area

Stabilize:

- Administer any medical procedures that are necessary before the victims can be moved. Stabilize or permanently fix the hazardous condition

- Attend to what caused the emergency and anything damaged or endangered by the emergency (e.g., drums, tanks).

Transport:

- Using either on-site or off-site assets

Casualty Logging:

- Record who, time, destination, and condition upon transport

Evacuate:

- Move site personnel to the rally point, a safe distance upwind of the incident.
- Monitor the incident for significant changes; the hazards may diminish, permitting personnel to re-enter the site, or hazards may increase and require public evacuation.

Casualty Tracking:

- Record disposition, condition, and location

15.11 Critique of Response and Follow-Up

Before normal site activities can resume, the site and personnel must be prepared and equipped to handle another emergency. It is also imperative that all federal, state, and local regulatory agencies be notified of the emergency. Therefore, the following activities must be conducted prior to re-start of site activities:

- Notify all appropriate governmental agencies as required (i.e., OSHA, must be notified if there have been any fatalities or five or more personnel hospitalized).
- Restock and clean all equipment and supplies utilized or damaged in the emergency.*
- Conduct an accident investigation to determine the cause of the emergency and what preventative measures could be taken to ensure the emergency does not occur again.*
- Complete the Incident form.
- Review and revise, as needed, the site operational procedures, and if necessary update the HSP to reflect the new procedures.*

***To be accomplished prior to re-starting site activities**

Information related to an emergency shall be recorded completely and accurately documentation shall be performed as soon as possible after the emergency to ensure it is recorded while the events are vivid in the minds of the personnel involved. Information to be recorded includes:

- A chronological record of events;
- A listing of the personnel involved, including personnel on site, site personnel who responded, personnel in charge, and off-site groups or agencies that responded;
- A listing of the actions taken to minimize the effects of or mitigate the emergency;
- An assessment of the potential exposures received by site personnel and the surrounding public; and
- A recording of the injuries or illnesses that occurred as a result of the emergency.

15.12 PPE and Emergency Equipment

The emergency equipment listed in Table A-2 above will be on-site, stored in the designated location, and available for use during operations. A dedicated emergency vehicle shall be available in proximity to the work sites. All emergency equipment shall be maintained in proper working order and inspected by the SSO at least weekly to ensure completeness and proper working order. The results of inspections are documented on the On-Site Safety Meeting Record. In the event that any disposable items are expended, the SSO ensures timely replacement. Site operations shall not be conducted if the required emergency equipment is not available on-site.

16.0 EMERGENCY RESPONSE TEAMS

All MGRC RI/FS operations will be conducted in a field environment and will not require any Emergency Response Teams. Personnel responsibilities in the event of an emergency are identified in detail throughout the APP, SSHP, and ERP.

17.0 CONFINED SPACE ENTRY

No confined space entry will be conducted during the MGRC RI/FS.

18.0 LOGS, REPORTS, AND RECORDKEEPING

18.1 Safety Log

The SSO maintains a safety log of all safety related site activity. The SSO is responsible for ensuring that safety and health activities and events for the day are part of the log. The log may include the minutes of the tailgate safety meeting, or the meeting may be documented on the Tailgate Safety Briefing Form. As a minimum, the safety log shall reference the tailgate safety briefing and mention accidents, near misses, internal and external audits, the reason for and duration of safety related stop work orders, and any other issues pertaining to site or personnel safety or health.

18.2 Injury/Illness/Accident Reports

Worker safety is the first priority on any task. In the event that a reportable accident/incident occurs at the job site, complete the Incident Report in Appendix F and return to the PM for review. If a near miss occurs, the SSO will investigate and report the results of the investigation to the MARRS home office.

18.3 Training Log

The SSO is responsible for ensuring that all training conducted relative to job site activities is documented in the training log and/or on the appropriate training forms. This log includes the initial site-specific training conducted prior to the start of site activities. The SSO maintains this log and any associated training forms on-site so that they are available for inspection.

18.4 Equipment Maintenance Logs

Performance of scheduled maintenance and calibration of equipment is recorded in the SUXO and Geophysics team leader logbooks as required.

18.5 Visitor Log

The SSO is responsible for maintaining the visitor log, which is used to record the entry and exit of all visitors, including MARRS, Earth Tech, USACE, and other authorized federal, state, or local officials who visit the site. This log reflects name, organization, date, and time of visitor entry/exit. Visitors are briefed on:

- APP
- Restricted and safe areas
- Site hazards and risks to include MEC, altitude, biological, heat/cold, and trip hazards
- PPE required and use
- Fire and MEC safety requirements
- Site evacuation and emergency procedures

19.0 SIGNATURE PAGE

Project:_____
WP/SSHP Date:_____

Page ___ of ___

I have reviewed and been briefed on the requirements of the work plan, including this SSHP and associated exhibits, for site activities at the Former Borrego Maneuver Area. I have been instructed in the contents of these documents specific to the tasks I will perform and understand the information presented. I will comply with the provisions contained therein.

PRINT NAME	SIGNATURE	ORGANIZATION	DATE

Page ___ of ___

PRINT NAME	SIGNATURE	ORGANIZATION	DATE

[This page intentionally left blank.]

ATTACHMENT B:

GENERAL SAFETY RULES FOR CONTRACTORS

General Safety Rules for Contractors

Introduction

The rules and requirements contained in this attachment have been written for the guidance of Contractors who are performing work under contract with MARRS Services Inc.. This booklet prescribes general requirements. Additional specific rules may be necessary to ensure the safety of workers on a particular job. The Contractor, working in collaboration with the MARRS Services Inc. representative, will be expected to establish such additional rules and procedures as may be necessary to conduct a safe operation and comply with all MARRS Services Inc., regulatory, and insurance requirements and those of our clients. MARRS Services Inc. health and safety professionals are available to assist.

The term Contractor, as used in this attachment, shall be understood to include any and all persons, sole proprietorships, partnerships, corporations, or other business ventures under contract, oral or written, to MARRS Services Inc..

Contractor is responsible for informing its subcontractors of these requirements, for directing and supervising work of subcontractors, and for assuring that its subcontractors adhere to the requirements herein. MARRS Services Inc. may request Contractor to provide proof of its subcontractor's adherence to all rules and regulations and will prohibit access to MARRS Services Inc. property or job sites or our client's property for those Contractors not in compliance.

In order to assist Contractor in following these instructions, a MARRS Services Inc. Representative will be assigned to the Contractor to act as MARRS Services Inc.'s agent in all matters relative to work activities at MARRS Services Inc. facilities or job sites. Under no circumstances shall any work be started until the MARRS Services Inc. Representative has been contacted, a job orientation has been conducted by the MARRS Services Inc. Representative, and all permits, insurance, MARRS Services Inc., client, and regulatory pre-job requirements met.

The MARRS Services Inc. Representative and the MARRS Services Inc. Health and Safety professionals are authorized to stop any work which they may consider hazardous to MARRS Services Inc. personnel or equipment or Contractor personnel. This authority may be delegated to appropriate individuals.

General Safety Rules and Requirements

Accident Reporting

All accidents (personal and property damage) shall be reported orally to the MARRS Services Inc. Representative as soon as emergency conditions no longer exist. A written report shall follow within 7 days after emergency conditions are resolved.

Alcohol, Firearms, etc.

Alcoholic beverages, illegal drugs or narcotics, or guns and ammunition are not permitted on MARRS Services Inc. property or job sites. Personnel under the influence of alcohol or drugs shall not be allowed on MARRS Services Inc. property or job sites.

Approvals

The Contractor shall be required to obtain pertinent work permits or authorization and approval from the MARRS Services Inc. Representative before:

- Working on existing pipelines or equipment
- Entering tanks or closed vessels
- Entering any designated high-hazard areas
- Using torches, electrodes, electronic motors, forges, soldering irons, any open flames, or any device which could produce sparks or ignition source
- Closing walkways, roads, or restricting traffic
- Starting excavations
- Removing tanks from excavations
- Backfilling excavations
- Using utilities such as steam, water, compressed air, or electricity
- Sandblasting, spray painting, or guniting
- Storing flammable materials such as gasoline, oil, paints, oxygen cylinders, etc.
- Walking or working on roofs of buildings or equipment
- Drilling, boring, preparing test pits, or using geophysical equipment or any other exploratory equipment requiring penetration of surfaces
- Operating cranes or similar equipment near overhead power lines or pipelines
- Opening cutting through firewalls or berms
- Fueling or repairing Contractor operating equipment on MARRS Services Inc. property or job sites.

Security

For security reasons, entrance to and exit of MARRS Services Inc. facilities and job sites is restricted to those areas designated as the Contractor's work area.

Speed Limits

All vehicles on MARRS Services Inc. job sites and facilities must observe a maximum speed limit of 10 mph unless otherwise posted.

Vehicle Safety

- All vehicles must be parked in authorized areas only.

- There will be no passing of moving vehicles at job sites where there are narrow roads and short-sight distances.

- Vehicles will only be operated by personnel with valid licenses and good driving records.

- Vehicles shall have all required inspection and operating permits.

- Seat belts shall be used.

Safe Work Practices

Communication

Communication and coordination is vital to prevent accidents on construction sites. Every worker must be aware of equipment operating in his vicinity.

Confined Space Entry

Confined spaces include storage tanks, bins, sewers, in-ground vaults, degreasers, boilers, vessels, tunnels, manholes, pits. etc. These enclosures, because of inadequate ventilation and/or the introduction of hazardous gases and vapors, may present conditions that could produce asphyxiation or injury.

Before entering a confined space, Contractor must notify the MARRS Services Inc. Representative of intent to enter. The MARRS Services Inc. Representative will review with Contractor the safe entry requirements which include:

Removal of Contents. Before entering, confined spaces should be as clean and free of hazardous materials and chemicals as possible. Where appropriate, confined spaces may be purged by water or other suitable means. Purging with hazardous solvents should be avoided where possible.

Isolation. All input lines which discharged into the confined space shall be disconnected and capped or isolated. The use of a single in-line valve shut-off as the sole means of isolating the confined space from any input lines is prohibited.

However, the use of a double in-line valving arrangement with a vent or drain in between the two valves is acceptable provided that dangerous air contaminants are not introduced by such venting. Isolation valves shall be locked closed, vent or drain valves shall be locked open, and the key shall be kept by that person performing the job.

Electrical Lockout. Where electrical devices located within the confined space (motors, switches, etc.) are to be repaired or worked on, the line-disconnect switches supplying the power must be tagged and locked in the "OFF" position. The lock key is to be kept by the person performing the job, and only this person is authorized to unlock the switch and remove the tag upon completion of the job. Where more than one person is working on the line, each must place a lock on the switch and retain his own key.

- Where there are multiple sources of power to an electrical device that supplies power to the device through an automatic or manual bus transfer switch, lockout devices must be placed on the breaker nearest to the electrical device that is to be isolated, and an electrician shall test the power supply lines to ensure that power has been secured.

- Line-disconnect switches supplying power to any mechanical apparatus in the confined space (mixers, conveyors, etc.) must also be tagged and locked in the "OFF" position. This must be done for any entry, even though work will not be performed on the apparatus itself.

Securing of Covers. All manhole and cleanout covers shall be removed and the openings maintained clear of any obstructions. When hinged doors or lids are provided, they shall be secured so they cannot close. See **Excavations and Trenches** for guarding requirements.

Testing Atmosphere. A qualified person (NIOSH Publication No. 80-106) using only equipment approved and tagged for Class 1, Division 1 locations shall make appropriate tests of the atmosphere in the confined space and place a record of the test results at the entrance to the confined space. Testing shall ensure the following:

- Combustible gas and vapor concentrations do not exceed 10 percent of the lower explosive limit

- Oxygen content is no less than 19.5 percent and no greater than 23.5 percent

- Appropriate respiratory protective equipment and other appropriate personal protective devices have been provided for all employees when concentrations of toxic materials exceed established threshold limit values (TLVs).

Continuous Monitoring. If the nature of the work to be performed introduces, or has the potential to introduce, harmful air contaminants, continuous monitoring of the atmosphere and/or the oxygen content drops below 20 percent, all personnel shall evacuate the confined space immediately.

Ventilation. All confined spaces found to be unsafe must be ventilated by means of mechanical exhaust systems arranged so as to avoid recirculating contaminated air. The Contractor must contact the MARRS Services Inc. Representative to obtain approval not to ventilate. Personnel shall be evacuated immediately in the event of failure of the mechanical ventilation system. The confined space shall be retested prior to reentry following ventilation system repair.

Buddy System. At least two workers shall remain outside the confined space. One standby worker shall be stationed just outside the access opening of the any confined space while such space is occupied. This person shall:

- Maintain continuous awareness of the activities and well being of the occupant in the confined space

- Be able to maintain communication at all times
- Be alert and fully capable of quickly summoning help
- Be physically able and equipped to assist in the rescue of an occupant from a confined space under emergency conditions.

Safety Gear and Personal Protective Equipment. All Contractor employees must be instructed in accordance with OSHA regulations regarding safety gear and personal protective clothing, hard hats, respirators, lifelines, and harnesses. Such instructions shall be received and documented before entering any confined space.

Compressed Gas Cylinders

Valve protection caps. Valve protection caps shall be in place when compressed gas cylinders are transported, moved, or stored.

Cylinder valves. Cylinder valves shall be closed when work is finished and when cylinders are empty or are moved.

Compressed gas cylinders. Compressed gas cylinders shall be secured against rolling or tipping (roped or chained) at all times, except when cylinders are actually being hoisted or carried.

Gas regulators. Gas regulators shall be in proper working order while in use.

Leaks. If a leak develops in a gas cylinder, after donning appropriate safety equipment, immediately remove it to a safe location. If the leak cannot be corrected, report it to the MARRS Services Inc. Representative.

Identification of Contents. Cylinders should be permanently marked or stenciled to identify the type of gas in the cylinder.

Breathing Air. All compressed breathing air shall meet OSHA specifications for breathing air quality. All compressed breathing air cylinders shall have their contents checked at the job site for correct oxygen concentration and rejected for breathing air if the oxygen concentration is not 20.7% ±0.2%.

Oil and oily rags. Oil and oily rags shall be kept away from oxygen equipment.

Cranes, Hoists, and Other Heavy Equipment

Contractor personnel will not be permitted to use hoists and powered apparatus belonging to MARRS Services Inc. unless approval is obtained in each instance from the MARRS Services Inc. Representative.

ROPs. Roll over protection shall be used when conditions or regulations call for such use.

Cutting or Welding

Hot Work/Welding/Burning. "Hot Work" authorization must be obtained from the MARRS Services Inc. Representative before any welding, cutting, or other "hot work" is done. "Hot work" permits and results of tests are to be submitted to the MARRS Services Inc. Representative at the completion of the job or at the end of each workday.

Welding Flash. Noncombustible or flameproof shields or screens must be provided to protect welder or others who might be harmed by direct rays or arc.

Personal Protective Equipment. Goggles, gloves, aprons, and other personal protective equipment appropriate to the job shall be used.

High Fire-Hazard Areas

- Contractor personnel are responsible to see that a fire watch is maintained and all adjacent combustible materials are protected or removed as designated by the MARRS Services Inc. Representative.
- Contractor shall provide his own calibrated combustible gas meter or other instruments for checking areas before hot work.
- Documentation of calibration shall be submitted to the MARRS Services Inc. Representative for review by the MARRS Services Inc. Health and Safety Section.
- Contractor is responsible for all testing and monitoring required by applicable regulations and to assure work place safety.
- MARRS Services Inc. shall have the right, not the responsibility, to perform additional testing. MARRS Services Inc. testing shall not be in lieu of Contractor's requirements.
- In the event of a bona fide emergency, such as emergency spill response work, and where the Contractor warrants that he cannot conduct the required testing, MARRS Services Inc. may upon written agreement then conduct all tests necessary to assure safety and regulatory compliance. The Contractor shall cosign the "hot work" permit form when tests are conducted by MARRS Services Inc. personnel.
- Contractor shall provide his own fire extinguisher(s) for welding and cutting, as designated by the MARRS Services Inc. Representative.

Electrical Safety

Grounding. The noncurrent-carrying metal parts of fixed, portable, or plug-connected equipment shall be grounded. Since ground wires can break, they shall be tested with an electrical resistance meter to assure conductivity as often as necessary to assure safety. Portable tools and appliances protected by an approved system of double insulation need not be grounded.

Extension Cords. Extension Cords shall be the three-wire type for grounded tools (two-wire is permissible for double-insulated tools) and shall be protected from damage; do not fasten with staples or extend across an aisleway or walkway. Worn or frayed cords shall not be used. Cords shall not be run

through doorways where the door could cut or damage them.

Light Bulbs. Exposed bulbs on temporary lights shall be guarded to prevent accidental contact, except where bulbs are deeply recessed in the reflector. Temporary lights shall not be suspended by their electric cords unless designed for this use. Explosion-proof bulb covers shall be used when contact with flammable vapors or gases is likely and shall meet Class I, Division I requirements.

Electrical Receptacles. Receptacles for attachment plugs shall be of the approved, dead-front, concealed contact type. Where different voltages, frequencies, or types of current are supplied, receptacles shall be of such design that attachment plugs are not interchangeable.

Wet Environments. Work done in wet environments shall require ground fault interrupters and watertight connectors.

Emergency Equipment

MARRS Services Inc.'s fire equipment is not to be moved, relocated, or otherwise rendered inaccessible unless specific permission is granted in each case by the MARRS Services Inc. Representative.

Self-contained breathing apparatus, first aid equipment, fire blankets, stretchers, eyewash fountains, and deluge showers are not to be moved, relocated, or blocked without the express permission of the MARRS Services Inc. Representative.

Excavations and Trenches

Permits. Before any excavation work begins, all required permits would be obtained.

"Dig-Alert". Before any excavation work begins, the existence and location of underground pipes, electrical conductors, etc., must be determined by Contractor who shall in turn notify the MARRS Services Inc. Representative.

Cave In Protection. The walls and spaces of all excavations and trenches (which will be entered by people) more than 4 feet deep shall be guarded by shoring, sloping of the ground, or some other equivalent means, in accordance with Cal/OSHA regulations.

Daily Inspections. Daily inspections of excavations will be made by the Contractor. If there is evidence of possible cave-in or slide, all work in the excavation shall cease until the necessary safeguards have been taken.

Egress. Trenches more than 4 feet deep shall have ladders or steps located so as to require 10 feet or less of lateral travel between means of access.

Backfill. All trenches shall be backfilled as soon as practical after work is completed and all associated equipment removed.

Housekeeping. All Contractor equipment, such as pipe, rebar, etc., shall be kept out of traffic lanes and access ways. Equipment shall be stored in a manner which ensures the safety of MARRS Services Inc. and Contractor employees at all times.

Fall In Protection. All trenches shall be completely guarded on all sides. Standard guardrails are preferred. However, when wooden or metal barricades are used for trench guarding, they shall be spaced no further apart than 20 feet, and at least two feet from the edge of the trench. Such barricades shall be at least 36 inches high when erected.

- Battery-lighted barricades shall be used as follows:

  (1) A minimum of two battery-lighted barricades shall be used at corners, one on each side of the barricade.

  (2) At least one battery-lighted barricade shall be used where vehicular traffic approaches the trench at right angles.

  (3) Where trenches parallel roadway, distance between battery-lighted barricades shall not exceed 40 feet unless this requirement conflicts with Item (1), above, and additional units are required.

  (4) All battery-lighted units shall be serviced as necessary to ensure equipment is operating.

- Caution tape shall be stretched securely between barricades. The caution tape shall be at least 3/4-inch-wide and shall be yellow or yellow and black and may have the words "CAUTION - DO NOT ENTER."

- Barricaded sections immediately adjacent to where pedestrians cross trenches shall be arranged to direct pedestrians to the walkway or bridge.

Encroachment. Use of other trench excavating equipment, or storage of equipment or supplies within a distance equal to the depth of the trench, will not be permitted without approval by the MARRS Services Inc. Representative.

Bridges. All pedestrian bridges shall be of sufficient strength to prevent no greater vertical deflection than one-half inch when a 250-pound weight is applied to the center of the bridge.

- Handrails shall consist of intermediate and top rails on both sides of the bridge. The top rail shall be between 42 and 45 inches above the walking surface and be capable of withstanding a lateral force of 200 pounds against the center of the top rail.

- All surfaces which a person could reasonably contact should be sufficiently free of splinters, nails, or protrusions which may cause injury.

- All bridges intended for vehicular traffic shall be constructed to withstand twice the load of the heaviest vehicle anticipated.

Earth Grading Activity

Vest. All persons within an area where earthmoving are operating shall wear a safety vest or jacket at all times. Vests may be red, orange, or day-glo green in color, but bright or fluorescent orange is preferred. Significantly faded or damaged vest must be replaced.

Communication. Anytime a test pit is to be excavated, the technician shall notify the grading contractor's **authorized** representative for that area. That individual may be acting in the capacity as a dump man, operator, or supervisor from an independent vehicle. Advise that representative of the test pit location and request their cooperation to promote safety during the test period. This should include their advising those under their supervision of your existence in the grading area. Make a notation on your records of the name of the individual with whom you spoke so that the communication is documented.

- Provide notice to the grading contractor
- Identify location of test pit
- Request the cooperation through the completion of the tests and document accordingly.
- A flag must be affixed to any vehicle driving in an earth grading activity area and hazard-warning lights shall be operated.

Flags. Every over-the-road vehicle operating in the area of earthmoving equipment activity must carry a flag. The flag must be at least 300 square inches in area with no dimension less than 12 inches. Flags must be high visibility red, orange, day-glo green and mounted approximately 12 feet above grade level.

Hazard Warning Lights. Every over-the-road vehicle operating in the area of earthmoving equipment activity must operate the hazard warning flashers at all times.

Rotating or Flashing Beacon. All vehicles stationary in the grading area shall use a rotating or flashing amber beacon or strobe light on the top of the cab of the vehicle during all field testing.

Orientation of Test Pits. The technician is responsible for selecting a test pit location. Of paramount concern is the technician's safety. The test pit should be located behind the established pattern of grading equipment and outside any existing patterns. The orientation of the pit should include the use of the technician's vehicle as a barrier to potential oncoming traffic. The waste pile created from the excavation of the test pit should be opposite the vehicle so that the test pit is positioned between the vehicle and the waste pile. A flag shall be placed immediately on top of the waste (spoil) pile, satisfying the same requirements as the vehicle flag.

Zone of Non-Encroachment. The location of the test pit must be selected so that no earthmoving equipment will approach closer than 50 feet from the center of the test pit. This is not only for the technician's safety, but to ensure the integrity of the test. Excessive vibration from the operation of earthmoving equipment operating too closely may impair the accuracy or spoil the test results.

Completion of Tests. Immediately upon completion of tests, record the data and withdraw flags and vehicles outside the grading area to record notes and do calculations.

Fire Prevention

MARRS Services Inc. Representative, or his designee, is authorized to correct any condition which he may consider a fire hazard. In any emergency, the site personnel are authorized to act directly with Contractor's Foreman in regard to fire hazards without waiting for the MARRS Services Inc. Representative.

Floor Openings

Floor openings shall be guarded by substantial barriers, railings, and/or covering materials strong enough to sustain twice the load of pedestrians or vehicular traffic. Barriers will be supplied by the Contractor.

Where a danger of falling exists for personnel, elevated floor areas must be provided with guardrails. In addition, toeboards shall be provided when the possibility of falling objects striking personnel below exists.

High-Hazard Areas

Although this list may not be all-inclusive, there are certain areas and operations at MARRS Services Inc. facilities and job sites where extra precautions must be taken because of the nature of the hazards. When starting up any operation, the Contractor is required to check with the MARRS Services Inc. Representative for a review of the safety and health rules which apply before entering any of the following areas:

- Confined spaces (tanks, manholes, vaults, pits, etc.)
- Laboratories
- Chemical storage and disposal areas.

The contractor is also required to check with the MARRS Services Inc. Representative before any work is done on a flammable gas or solvent line; a tank or vessel that presently contains, or has contained, a flammable material; and before making an excavation anyplace on the site.

Housekeeping

Material should be carefully stacked and located so that it does not block aisles, doors, self-contained breathing apparatus, fire extinguishers, fire blankets, stretchers, emergency eyewash fountains, emergency safety showers, fixed ladders, stairways, or electrical breaker panels.

- Nails protruding from boards must be removed or bent over.
- All work areas shall be kept clear of form and scrap lumber and all other debris.

- Combustible scrap, waste materials, and debris shall be removed at regular and frequent intervals.

- Containers shall be provided for the collection and separation of refuse by type. Covers shall be provided on containers used for flammable, combustible, or harmful substances.

- Overhead storage of debris, tools, equipment, pipes, etc., is prohibited.

- At the end of each workday, Contractor shall provide for pick up of all debris such as paper, rags, empty cans and bottles, etc.

Ladders

The use of ladders with broken or missing rungs or steps, broken or split handrails, or with other faulty or defective construction is prohibited.

- Ladders must not be placed adjacent to a door unless the door is locked or guarded.

- Metal ladders shall not be used for electrical work.

- Tie off top of ladder to structure.

Medical Service and First Aid

Emergency Medical Service. Preplanned emergency medical service shall be provided as designated by Contractor and approved by the MARRS Services Inc. Representative.

First Aid Kit. Each Contractor shall provide a first aid kit for his employees which meets minimum OSHA requirements.

Mobile Cranes

Mobile cranes, including portable crane derricks, power shovels, or similar equipment, shall not be operated within ten feet of overhead electrical power lines.

Overhead Work

No overhead work shall be performed when, as a result of that work, the possibility of a falling object striking any person exists. Do not work above any person at any time.

Personal Protective Clothing and Equipment

In certain construction and maintenance operations, personal protective equipment such as safety glasses, chemical goggles, respirators, hard hats, and protective clothing is required. The type of protective equipment to be worn will be determined by the degree of exposure to the potential hazard. There will be very few occasions when hard hats and eye protection will not be required at MARRS Services Inc. job sites. When in doubt of the safety measures to be observed, Contractor shall contact the MARRS Services Inc. Health and Safety Section. This shall not, however, relieve Contractor of his responsibilities to determine appropriate protection.

Eye protection is required when engaging in such operations as the following:

- Drilling, chipping, grinding, wire brushing
- Handling caustics and acids

- Breaking bricks or concrete

- Hammering chisels, drift pins, etc.

- Burning or welding

- Other situations which create a possible eye hazard, e.g., chemical environments.

Photographs

Only MARRS Services Inc. photographers, with permission from DIPEF, are permitted to carry cameras or take pictures. If progress or finished construction photographs are desired, request for same should be made through the MARRS Services Inc. Representative.

Power Tools

Power and Air-Actuated Tools. Gasoline-powered, electric, or air-actuated tools are not to be used on MARRS Services Inc. property or job sites without prior approval of the MARRS Services Inc. Health and Safety Department. To obtain approval, Contractor must contact the MARRS Services Inc. Representative.

Explosive-Actuated Tools. Explosive-actuated (powder-actuated) fastening tools shall meet the design requirements in "American National Standard Safety Requirements for Explosive-Actuated Fastening Tools" (ANSI A10.3-1970). A tool which does not meet these design standards cannot be used.

- Power tools shall never be left unattended in a place where they would be available to unauthorized persons.

- Power tools shall not be used in explosive or flammable atmospheres.

Fall Protection

Appropriate fall protection, such as safety harness and lanyard, must be worn when worker is exposed to falling more than 6 feet. Lanyard or lifeline must be tied off to appropriate structure capable of supporting five times the weight of the person (nominal 1000 pounds).

- Appropriate fall protection, such as safety harness and lanyard, must be worn when working above eight feet on straight or extension ladders when the work involves pushing, pulling, or action which may dislodge the person from the ladder.

- Safety harnesses are also required on swinging or portable scaffolds when handrails and toeboards are not provided (eight feet or more above ground or floor level).

- Safety harnesses and lifelines (including extraction devices for top entry spaces) are

required on all work performed in confined spaces where an oxygen deficiency or toxic vapors may exist.

- All lifelines shall be safety secured to stable and adequate supports.
- Safety harnesses and lifelines must be worn on rooftops where there are no guardrails and where the work is within ten feet of the edge.

Salamanders

- "Hot work" authorization must be obtained from the MARRS Services Inc. Representative before using a salamander.
- Salamanders must be a Factory Mutual or Underwriters Laboratories-approved type.
- Position salamanders away from all combustible material to reduce the possibility of uncontrolled fire.
- Guard salamanders from traffic to prevent them from being overturned.

Scaffolds

All scaffolds, whether fabricated on site, purchased, or rented, shall conform to the specifications found in ANSI A10.8, Safety Requirements for Scaffolding. Rolling scaffolds shall maintain a three-to-one height-to-base ratio.

- The footing or anchorage for a scaffold shall be sound, rigid, and capable of carrying the maximum intended load without settling or displacement.
- Unstable objects, such as barrels, boxes, loose bricks, or concrete blocks, shall not be used to support scaffolds or planks.
- No scaffold shall be erected, moved, dismantled, or altered except under the supervision of competent persons.
- Scaffolds and their components shall be capable of supporting at least four times the maximum intended load without failure.
- Guardrails and toeboards shall be installed on all open sides and ends of platforms more than 10 feet above the ground or floor.
- Scaffolds measuring four to ten feet in height, and having a horizontal dimension of less than 45 inches, shall have standard guardrails installed on all open sides and ends of the platform.
- Wire, synthetic, or fiber rope used for suspended scaffolds shall be capable of supporting at least six times the rated load.
- No riveting, welding, burning, or open flame work shall be performed on any staging suspended by means of fiber or synthetic rope.
- Tested fiber or approved synthetic ropes shall be used for or near any work involving the use of corrosive substances.
- All scaffolds, boatswain's (bosun's) chairs, and other work access platforms shall conform to the requirements set forth in the federal OSHA Regulations for Construction (29 CFR 1926.451) except where the specifications in ANSI A10.8 7 or state or local regulations are more rigorous.

Smoking and Open Flames

Smoking and the use of open flames are strictly prohibited in areas where flammable liquids, gases, or highly combustible materials are stored, handled, or processed. Obey "No Smoking" signs. Smoke only in designated areas.

Solvents and Paints

- Adequate ventilation must be maintained at all times when paints or solvents are used.
- Personnel should use proper respiratory protection and protective clothing when toxicity of the material requires such protection.
- Flammable solvents and materials must be used with extreme caution when possible sources of ignition exist.
- Flammable paints and solvents must be stored in an approved (Factory Mutual or Underwriters Laboratories) flammable liquids storage cabinet when storage is required inside the buildings. If an approved cabinet is not available, paints and solvents must be removed from the building when not in use.
- Flammable liquids must be dispensed in safety cans with flash arresters bearing a Factory Mutual or Underwriters Laboratories approval. These containers must be clearly identified as to their contents.
- Material Safety Data sheets, for materials used by the Contractor, shall be maintained by the Contractor, and a copy provided to the MARRS Services Inc. Representative.

Tarpaulins

When tarpaulins are required for the detection of hot slag, dust, paint drippings, etc., or as security barriers, they shall be flame-resistant and in good condition.

Tools

Hand and power tools shall be kept in safe operating condition. Mushroomed heads on cold chisels, star drills, etc., are unsafe and should not be used. Hammers should have handles which are not cracked, split, or broken.

Nonsparking tools may be necessary in certain areas where flammable materials are handled or where sparks could create an explosion.

Transporting Material and Equipment

Extreme care must be taken while carrying sections of pipe, conduit, and other materials to assure safety to MARRS Services Inc., Contractor, and client personnel and property. This includes, but is not limited to, flagging and use of two people to carry pipe of lengths greater than 10 feet.

- Tools, materials, and equipment must not be left unattended in access ways.
- Tools, material, and equipment shall not be removed from the job site without permission of the MARRS Services Inc. Representative.

Walking and Work Surfaces

- Workroom floors shall be clean and, to the extent possible, dry.
- Drainage mats, platforms, or false floors should be used where wet processes are performed.
- Floors shall be free from protruding nails, splinters, holes, and loose boards or tiles.
- Permanent aisles or passageways shall be marked.
- Floor holes shall be protected by covers that eave no openings of more than one inch wide.
- Floor openings into which persons can accidentally walk shall be guarded by standard railing and toeboards.
- Open-sided floors, platforms, and runways higher than four feet shall be guarded by standard railings.
- Toeboards shall be used wherever people can pass below, or where hazardous equipment or materials are located below.

Warning Signs

All posted warning, safety, and security signs and barriers shall be observed. Additionally, Contractor shall provide warning signs, barriers, barricades, etc. wherever such protection is needed. Where signs and barricades do not provide adequate protection, particularly along a road, flagmen shall be used.

Regulatory References

(a) *Standard Operating Safety Guides*, USEPA, November 1984

(b) Title 29 of the Code of Federal Regulations, Part 1910 (29 CFR 1910), Occupational Safety and Health Standards (USDOL/OSHA), with special attention to Section .120, Hazardous Waste Operations and Emergency Response

(c) Title 29 of the Code of Federal Regulations, Part 1926 (29 CFR 1926), Safety and Health Regulations for Construction (USDOL/OSHA), with special attention to Section 1926.65, Hazardous Waste Operations and Emergency Response

Contractors are expected to brief their employees on these requirements and enforce these rules with their employees. MARRS Services Inc. management may stop or suspend work at any time the Contractor fails to comply with MARRS Services Inc. rules and regulations.

ATTACHMENT C:

ACTIVITY HAZARD ANALYSIS

TABLE OF CONTENTS

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Activity Hazard Analysis
Former Mojave Gunnery Range "C" RI Work Plan

Activity Environmental Protection **Analyzed by/Date**_____ **Reviewed by/Date**_____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Cultural/Natural resources avoidance Shift to alternate sampling grid location	Weather-related hazards - Wind, rain - Sun Walking surfaces - Unimproved land, range land - Sand, rocks, gravel, mud	Must be escorted by EOD-trained personnel. Wear clothing appropriate to weather conditions. Use sunscreen. Watch carefully where you walk. Do not step in shadows until you are sure of your footing. Shadows may hide poisonous snakes, spiders, small animals, pits, holes, or other areas of unstable footing. Carefully choose your footholds when crossing rocky, uneven, or loose ground surfaces.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Level D PPE with leather boots	Stay within sight of your buddy	HAZWOPER initial 40-hour training Site-specific training Review and comply with SSHP

Activity Hazard Analysis
Former Mojave Gunnery Range "C" RI Work Plan

Activity UXO Treatment/Demolition-Operations **Analyzed by/Date**_____ **Reviewed by/Date**_____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Explosives handling and transportation Preparing and placing charges Blow (detonation) in place (BIP) Venting inert filled UXO	Explosives UXO Noise Fire Fragmentation Vehicle Accident Accidental detonation Slip, trip, and fall Heat stress	Apply CESPL safety concepts and basic considerations Proper footing and footwear Remove obstacles on disposal site Know heat stress warning signs and proper action Use TM60 series for specific UXO Have first-aid kits and fire extinguishers Educate personnel to stay beyond fragmentation distance from disposal site Conduct operations and safety briefing prior to beginning operation No smoking Maintain MSD, tamping: control of shot

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Demolition equipment Level D PPE with leather boots, leather gloves, and safety glasses Electrical firing system/Non-EL Hand tools, Fire Extinguisher	Ensure demolition equipment and hand tools are serviceable To be inspected daily prior to use	EOD School graduate HAZWOPER 40-hour and refresher Site-specific training Review and comply with SSHP Training people in use of tools Valid State Driver's License; current OSHA Qualifications.

Activity Hazard Analysis
Former Mojave Gunnery Range "C" RI Work Plan

Activity Subsurface Utility Clearance **Analyzed by/Date**_____ **Reviewed by/Date**_____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Contact utility companies Inspect site Conduct magnetometer sweep	UXO Weather-related hazards: Wind, rain, sun Walking surfaces: Unimproved land, range land, sand, rocks, gravel, mud Dangerous plants: Cactus Lifting hazards	Must be escorted by EOD-trained personnel. Wear clothing appropriate to weather conditions. Use sunscreen. Watch carefully where you walk. Do not step in shadows until you are sure of your footing. Shadows may hide small animals, pits, holes, or other areas of unstable footing. Carefully choose your footholds when crossing rocky, uneven, or loose ground surfaces. Optimize ergonomics of instrument handling.

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Magnetometer, stakes, hammer Level D PPE with leather boots, leather gloves, and safety glasses	Daily check of magnetometer using buried source Stay within sight of buddy	EOD School graduate IAW state and local laws HAZWOPER initial 40-hour training Site-specific training Review and comply with SSHP

Activity Hazard Analysis
Former Mojave Gunnery Range "C" RI Work Plan

Activity Inert Ordnance/ MEC Scrap Recovery **Analyzed by/Date**_____ **Reviewed by/Date**_____

PRINCIPAL STEPS	POTENTIAL HAZARDS	RECOMMENDED CONTROLS
Picking up scrap Loading onto truck Lifting Transport	Lifting heavy objects Vehicle accident Vehicle fire	Inspect vehicle for suitability to travel over terrain Use proper lifting techniques Use only qualified drivers Have appropriate first-aid kits, fire extinguishers Properly secure load for transport

EQUIPMENT TO BE USED	INSPECTION REQUIREMENTS	TRAINING REQUIREMENTS
Vehicle with rate load capacity of 1/2 ton or greater, suitable for off-road travel Level D PPE with leather boots, leather gloves, and safety glasses	In accordance with DOT requirements per Title 49 CFR	IAW DOT, state, and local laws HAZWOPER initial 40-hour training Site-specific training Review and comply with SSHP